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GEOGRAPHICAL NOTES.

BY

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THE CONGRESS AT BERNE.—The International Congress of Geographical Sciences held its sessions at Berne during the week, August 10–14, 1891. Representatives from the Societies of nearly all countries took part in the proceedings.

The Congress was opened, at 9 o'clock in the morning of August 10, the chair being occupied by the President, M. Gobat, with an address by M. Droz, of the Federal Council.

M. Gobat announced the presence of official representatives from the Governments of the following Countries: Belgium, Brazil, France, Hungary, India, Italy, Mexico, Netherlands, Portugal, Spain, Sweden, United States and Wurtemberg. In a few words he gave expression to the sorrow felt by the Congress at the tidings, unhappily confirmed, of the massacre of the explorer Crampel and his companions.

Mr. Robert N. Cust, delegate of the Royal Geographical Society, of London, spoke on the work of the European and American missionaries in Africa. He was followed by Dr. von Steinen, of Marburg, who discussed the subject of the Caribs and their origin ; and Prince Henri d'Orleans then read a paper on his journey to Tibet with M. Bonvalot.

In the afternoon the members paid a visit to the geographical exhibition, and then resumed the sitting. Dr. Penck explained his ideas on the construction of a map of the whole world on the scale of one-millionth. This map would cover a surface of 510 square metres (about one-fifth of a square mile), but, if limited to the Continents and the known lands, it would cover about one-fourteenth of a square mile. The map would consist of 1,000 sheets. At Dr. Penck's request a committee was named to report upon his proposition.

M. de Lannoy de Bissy then gave an account of his labors in working out a map of Africa on a scale of one two-millionth.

Mr. F. A. Stout, of New York, described the advantages presented by the physical features of Nicaragua and its great lake for the construction of a ship-canal; and Mr. A. R. Eckfout, of Java, spoke on the progress made in the construction of railways in the Sunda Islands.

The morning of the 11th was devoted, in the first place, to the question of the initial meridian and the universal hour. Mr. Förster, Director of the Berlin Observatory, submitted a report, which proposed the reference to the Committee on the map of the world of a resolution, calling upon the Swiss Federal Council to take the initiative of an international understanding as to the introduction of a single initial meridian, a universal hour and the application of the decimal system to the measurement of time. Mr. Förster rejected the system of horary gores (*fuseaux horaires*).

He showed that this system was nothing more than transitional and that it would press, at last, with an intolerable weight upon scientific pursuits as well as upon traffic and the civil life of communities. He proved that for science as well as for all other forms of human industry, it was indispensable to have a local hour, though exception might be made in favor of railroad and telegraph service.

Col. Coello, president of the Madrid Geographical Society, advocated the universal hour and the reference to the Committee; and Prof. Mareuse, of Paris, spoke in favor of the horary gores, already adopted in many countries. There are twenty-four of these gores, each of fifteen degrees. M. Bouthillier de Beaumont was in favor of an initial meridian, passing through Bering Strait.

Father Tondini di Quarenghi, whose zeal knows no abatement, insisted upon the advantages of the meridian of Jerusalem; and after a very lively discussion, the whole subject was referred to a Committee.

Prof. Amrein treated the subject of the modern sentiment of nature, and, more particularly of alpine nature. Prof. Knapp presented his observations on the foreign population in Switzerland (Frenchmen 53,653, Germans 95,262, Italians 41,500), and M. de Claparède described the botanic garden *Linnæa;* and the following resolution was adopted:

"The fifth International Congress of Geographical Sciences, sitting at Berne in 1891, recognizing the interest presented by the alpine botanic garden *Linnæa,* at Bourg-Saint-Pierre (Valais), for the study of the botanical geography of all the elevated regions of the globe, resolves to recommend this undertaking to the good will and the support of all geographical societies."

Maj. Post, U. S. A., described the operations of the

U. S. Coast and Geodetic Survey, which was organized and brought into working order by Prof. Hassler, a native of Switzerland. He explained, also, what had been done by the U. S. Geological Survey in its special department as well as for the topographical map of the United States, now in course of publication.

M. Faure offered a detailed study on the state of geographical instruction in Germany, America, England, Belgium, France and Switzerland. Mr. Scott Keltie spoke of recent geographical progress in Great Britain ; and he was followed by Frère Alexis, of Paris, on popularizing geographical knowledge, by Mr. de Haardt, of Vienna, on the importance of ethnography as a constituent part of geographical instruction in intermediate schools, and by M. Oppel, who spoke of maps of political economy and of exploring expeditions.

In the afternoon Prince Roland Bonaparte presented his recent publications, and General Annenkoff made an address on the subject of the importance of geographical instruction in the XIX century, as a basis of emigration and colonization. He made a comparison between the events which occurred at the close of the XV and in the XVI century, and those which pass under our eyes at the present time. " From 1492," he said, "to 1522, we stand in the presence of an immense renovation, a veritable intellectual and social revolution, an irresistible movement towards the unknown. . . . While Columbus was discovering America and was taking possession of it in the name of Spain, Vasco da Gama was arriving in India by the Cape of Good Hope. The expedition of Gama constitutes the national epoch of the Portuguese. Gama and Albuquerque seem to belong to poetry rather than to history. It is a mixture of the lust of gold with religious proselytism, and an unmeasured need of impetuous expansion through the world, that strike us when we think of this people, occupying so small an area in Europe. Only fifteen years after the death of Columbus, Magellan discovers the long sought-for passage, and the first circumnavigation of the globe is accomplished.

"We are surely struck with amazement, when we think that almost at the same time, or, at least, within a very short period of time men of great genius, like Christopher Columbus, Vasco da Gama, Ferdinand Cortés, Pizarro, Americus Vespucius, Marco Polo * and many others make great discoveries that revolutionize the globe. . . . After this beautiful and glorious epoch, there comes a time of relative calm, a calm that lasted till the second half of the XIX century, when there begins again a feverish activity, a desire, manifesting itself like a disease, to become acquainted with far-distant countries as yet unvisited and to unite them to the civilized world, and to open in this way a new field to human activity."

Gen. Annenkoff then passed in review the work done in Africa and in Asia, in Australia and in America, by the travellers and explorers who have left almost no region of the globe untrodden. He described the expansion of colonies into great nations, the increase of population in the Old World and its overflow in emigration. "Like Alexander," he said, "and with greater reason than Alexander, we find the world too small for us."

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* General Annenkoff knew of course, but forgot for a moment, that Marco Polo lived two centuries before Columbus.

In conclusion, he proposed a resolution for drawing up a uniform international series of questions on the fitness of different countries for colonization; and, after some discussion, this resolution was unanimously adopted. Mr. de Coczy, Director of the Hungarian Geological Institute, described Count Szechenyi's travels in China. The geography and natural history of Bismarck Archipelago were treated by Count Pfeil, of Berlin.

The day was marked by an incident, which carries with it a lesson in manners, if not in geography. Mr R. N. Cust, who addressed the Congress the day before, had distributed in a printed form his paper on the occupation of Africa by Christian missionaries, with the inscription: "International Congress of Geographical Sciences, at Berne, 1891."

In this pamphlet occurred the following sentence (here translated from the French) applied to the Germans: "With a brutal cynicism they have laid hands upon what they could take, without concerning themselves as to the feelings of the people and without thinking of the day, which will surely come, when they will have to render an account." *

These international sentiments, so courteously expressed, did not win the approbation of the Germans.

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* It is due to Mr. Cust to observe that his language, though apparently restricted to the Germans, is nothing more than the outcome of his long-settled convictions with regard to the spiritual nature of Europeans in general, or perhaps, of continental Europeans.

Writing in the *Proceedings* of the Royal Geographical Society for August, 1886, he said that the island of Djerba, on the coast of Tunisia, had "a population of 35,000 souls, and 360 Europeans."

Mr. Cust's devotion to the cause of the Africans and his faith in their high qualities enforce this explanation of his words, since the natural opposite of the African is not the German, but the European.

They spoke of withdrawing from the Congress in a body, but allowed the matter to pass, on reflection, and accepted the following declaration made by the President, M. Gobat, and entered in the bulletin of the Congress :

" Thus far there have been heard in the meetings of this Congress no words that were less than courteous and obliging for all nations. No one has had occasion of complaint.

" We trust that cordiality has not ceased to prevail, also, outside of the Congress, among the different representatives. There has been distributed, however, a pamphlet on the work of the missionaries in Africa, and this pamphlet contains expressions offensive to a nation represented in the Congress. We leave the responsibility of those utterances to their author, and we are far from assuming the position of censors ; but we should have preferred to have these expressions remain completely foreign to the Congress. In the hope that the most entire concord will preside over our deliberations to the end, I declare the incident void."

The session of August 12 opened with remarks upon his travels in Java, by M. Fritz Du Bois. M. Arthur de Claparède gave his recollections of the Philippines ; and M. Napoléon Ney, of the Comm. Geographical Society, of Paris, made a report on the Transsaharan Railway. He showed that the enterprise was comparatively an easy one, that it would return a more than sufficient interest upon the capital, and that it would be of incalculable advantage to France and to the cause of civilization. He called upon the Congress to confirm by vote the resolution adopted at Brussels in 1879, to the effect that the construction of a railroad from the African sea-coast to the countries of the interior is very greatly to be desired. The line of the road is to be from the Mediterranean coast to Lake Tchad, and thence directly to the Niger.

Mr. F. A. Stout, of the American Geographical Society, read a paper on the pretended discovery of the source of the Mississippi by Capt. Willard Glazier. This paper was referred to a special committee.

On the 13th of August Professor Schmidt, of Vienna, explained the method employed in Austria for geographical instruction of the lower classes in the gymnasia. M. Bouthillier de Beaumont presented his planisphere, and M. Chardonnier, of the Berchem-Sainte-Agathe Institute for the Deaf and Dumb, proposed a new division of the earth in place of the accepted torrid, temperate and frigid zones. The subject of reform in the spelling of geographical names occupied the attention of the Congress, which unanimously recommended the report made by M. Barbier, of Nancy. M. Forel spoke of the Subalpine lakes, and the hydrographic charts representing them ; and M. A. Delebecque, of Thonon, presented his own maps of the lakes of Annecy, Bourget and Geneva. The Congress expressed the hope that these surveys would be extended by the States, so as to embrace all the lakes.

A superb map of Etna was presented by its author, Prof. Emile Chaix. The subject of relief maps was attentively considered. There were discussions on meteorology and on geographical bibliography, and a resolution, looking to the institution of international committees for preparing this bibliography in each country, was offered by M. Guillaume, Director of the Federal Statistical Bureau, and adopted.

August 14, there was a debate on the report of the Committee on the initial meridian and the universal hour. It was finally decided by a unanimous vote to refer the question to delegates of the Powers, to meet at Berne. Resolutions were also adopted concerning the advice and information to be furnished to emigrants, and the new method of geographical instruction.

It was proposed to hold the next Congress at Genoa, on account of the Centenary of Columbus ; but, after discussion London was selected as the place, if the decision met the views of the Royal Geographical Society. On the proposition of General Annenkoff, the Congress voted that all the Societies be invited to send delegates to take part in the celebration of the Columbus Centenary at Genoa. The president, M. Gobat, then offered to General Annenkoff, in recognition of his great achievement of the Transcaspian Railway, the diploma of Honorary Membership in the Geographical Society of Berne ; a fitting close to the deliberations of the Congress.

Of eighteen resolutions voted by the Congress, M. de Claparède in the *Journal de Genève*, of August 22, notes several which must be, as he thinks, fruitful in good results.

First of these is the decision with regard to a map of the world, on a scale of one-millionth, the sections to be limited by the meridians and the parallels. The commission on this map is constituted as follows : Germany, Dr. Supan of Gotha ; Baron von Richthofen, Berlin ; Austria-Hungary, Gen. von Arbter, Director of the Imperial Geographical Institute, and Prof. Penck; Spain, Col. Coello; France, M. Maunoir and M. F. Schrader; United States, Maj. Powell and Prof. Mendenhall; Great Britain, Gen. J. T. Walker, Sir Charles Wilson, Mr. E. G. Ravenstein, and Mr. Scott Keltie; Italy, Prof. Guido Cora and Gen. Ferrero; Portugal, Prof. Cordeiro; Netherlands, M. Eckstein; Russia, Gen. von Tillo; Sweden, Maj. Selander; Switzerland, Col. Lochmann.

The second is the creation of an International Committee to draw up a list of questions, the answers to which shall furnish particular information with respect to colonies and the little known regions to which emigration is directed.

The third is Resolution No. 4, by which the Congress passed upon a question of fact, all the more urgent that it was of a somewhat delicate nature, in adopting the unanimous report of the Special Committee adverse to Capt. Willard Glazier's claim to be the discoverer of the source of the Mississippi.

The fourth is Resolution No. 5, on the subject of the Initial Meridian and the Universal Hour. By this Resolution the Congress gave expression to its desire that the "Swiss Federal Council, acting in concert with the Italian Government, which has lately taken the initiative, invite the other Governments to expedite the study of the questions of the initial meridian and the universal hour, as well as that of the utility of horary gores in international relations and in public life, and the assembling of a Committee of delegates, *provided with full powers*, to regulate *once for all* these various questions."

M. de Claparède says very truly that it is a matter of secondary importance, whether the meridian selected be that of Bering, or Ferro, or Greenwich, or Paris, or Rome, or Jerusalem. It is essential only to have one universally accepted meridian.

Fifth comes the Resolution (No. 7) by which the Congress recommends the alpine botanical garden *Linnæa* to the good-will of all geographical Societies.

The sixth place is held by the Resolution No. 8, which calls upon the Geographical Societies to use their influence for the establishment of special Chairs of Geography in the academies and universities.

AN INTERESTING SPECULATION.—Mr. E. G. Ravenstein contributed to the *Proceedings* of the Royal Geographical Society for January, 1891, an article on the "Lands of the Globe still available for European Settlement."

In this most instructive paper, Mr. Ravenstein showed that the increase of population in a decade was, for Europe, 8.7 per cent., for Asia, 6 per cent., for Africa, 10 per cent., for Australasia, 30 per cent., for North America, 20 per cent., for South America, 15 per cent.; and for the whole earth, 8 per cent. He put the present population of the earth at 1,468 millions. "By the close of this century," he said, "the 1,468 millions who now dwell upon the earth will have increased to 1,587 millions; in the year 1950 there will be 2,332 millions; in the year 2000, 3,426 millions; and in the year 2072, or 182 years hence, there will be be 5,977 millions. These estimates are not presented as a prophecy."

They sound, however, like the first notes of the last trumpet, for Mr. Ravenstein elsewhere says: "I therefore assume that this world of ours, if brought fully into cultivation, can supply 5,994 million human beings with food and other necessary products of the vegetable kingdom."

Clearly, something must be done by those who feel their responsibility to these ghostly millions of the year 2100, and M. Paul Leroy-Beaulieu is the first to come to the rescue. In two articles on *The Influence of Civilization on the Movement of Population*, translated in the *Journal* of the Royal Statistical Society for June, 1891, M. Leroy-Beaulieu notices Mr. Ravenstein's paper and presents some objections to its argument:

"Mr. Ravenstein," he says, "exaggerates the nourishing capabilities of the globe in assuming that agricultural science will remain in its present condition. It is very doubtful that the earth will be able to feed, cultivated as is the greater part of the European soil, the 5,994 millions whose existence is anticipated by Mr. Ravenstein in one hundred and eighty-two years' time, that is, in the year 2072. But, on the other hand, it is certain that the rate of increase of 8 per cent. in ten years in the numbers of the population, even supposing it to be an accurate one (and for the generality of the world it can only be a hypothetical one), cannot be maintained indefinitely. We have shown that the degree of civilization, or rather the special rate of European civilization, tends to diminish it."

In making his demonstration, M. Leroy-Beaulieu cited the well-known case of France, where the birth-rate fell from 25.4 per 1000 for the period 1870–1880 to 23.4 in the year 1888; but he added that all other civilized nations appeared to be tending in the same direction.

In Austria and in Hungary the birth-rate was the same in 1882 or 1883 as in 1865, but in Italy it fell from 38.3 to 36.9; in Prussia it fell from 39.1 to 36.3; in the Netherlands from 35.9 to 35.1; in Switzerland from 35.5 to 32.5, in Belgium from 31.4 to 30.5, in England from 35.5 to 33.7, and in Scotland and Ireland the birth-rate fell to the same level as the French, namely, from 24.9 to 23.6 per 1000.

His conclusion is that what it has been agreed to call civilization, which is really the development of material ease, of education, of equality, and of aspirations to rise and to succeed in life, has undoubtedly conduced to a diminution of the birth-rate.

He believes it to be impossible to determine the number of inhabitants that the earth will feed; but he regards it as certain that, in a very short time, in fifty or sixty years, and possibly in thirty or forty, when the New World has doubled or trebled the number of its inhabitants, a very decided rise in prices will be experienced in the Old World.

This period of sixty years will bring us to the year 1950, when the population of the United States will number, according to Prof. H. S. Pritchett (*Quarterly Publications of the American Statistical Association, June, 1891*), not less than 190,740,000. Prof. Pritchett's "Formula for predicting the Population of the United States" betrays no sign of the faint-heartedness, which marks Mr. Ravenstein's calculation. The 190,740,000 inhabitants of these United States, in 1950, will have increased, in the year 2100, to 1,112,867,000; in the year 2500, to 11,856,302,000; and in the year 2900, to 40,852,273,000. Fortunately for mankind, the formula ceases working at this point.

THE BRITISH ASSOCIATION AT CARDIFF.—The following note on some of the proceedings in the Section of Geography of the British Association is made almost without change from the reports in the London *Times:*

Dr. Robert W. Felkin read a paper on "Acclimatization." He said that on that subject there were two schools of thought—the one regarding acclimatization as impossible, the other more sanguine and pronouncing it possible. Probably the truth would be found to be a mean between the two. In reference to Europeans becoming acclimatized in the tropics, those factors which prevent it were heat, cold, damp, various endemic diseases, especially malaria, and those constitutional conditions induced by climate which either destroy the immigrants or diminish their fertility after one or two generations. Progress has been made during recent years in enabling persons to reside longer and to enjoy greater health in the tropics.

Colonel Sir Francis de Winton said life in the tropics was possible under certain simple rules—(1) a young man should not go there till the constitution was set, say 24 or 25; (2) he should be careful in clothing; (3) temperate in all things—living simply, but well; (4) always have work—the mind should be constantly employed—not overwork, and a certain amount of amusement.

Miss Clarke read her paper on "The Aborigines of Western Australia." She said: The monastic settlement of New Norcia, 70 miles from Perth, in Western Australia, is the most striking refutation of the generally received belief in the irredeemable degradation of the Australian aborigines. Founded in 1846 by two Spanish Benedictines, Fathers Serra and Salvado, who gradually won the confidence of the natives by sharing their pursuits, it now forms a flourishing industrial colony, consisting of a monastery, church and schools, surrounded by a vast cultivated domain, workshops for different trades, and a native village of about 50 cottages inhabited by as many Christian families. One of the girls trained here is in receipt of a Government salary as head of the post and telegraph office, in which, when absent on sick leave, she was efficiently replaced on short notice by one of her companions. The boys, too, learn with great facility, and many of them prove steady tradesmen or trustworthy servants and foremen. In the wild state these aborigines are cannibals who devour the flesh of their own kinsfolk and exhume for food bodies after three days burial. They believe in an omnipotent creator and an evil principle, but do not propitiate either by worship; they regard the moon as maleficent, the sun as a benefactor, and the stars as a numerous family sprung from the marriage of several couples amongst them. The soul is believed to survive after death in a disembodied state, and to transmigrate into the body of others, remaining in that of the last of the party who approach to invite it. They are grouped in families of ten or twelve, under the absolute rule of the head, but no longer, as formerly, form tribes by the agglomeration of these families. The men are prohibited from marriage before the age of 30, have often but one wife, sometimes two, and a larger number only when they adopt those of relatives or friends left otherwise unprotected. Defective infants and superfluous girls are killed, but the others are reared with great tenderness, which is also exhibited to aged parents.

Miss Clarke missed a great opportunity by failing to recommend the killing of *superfluous* girls in civilized countries. Are Europeans less tender-hearted than West Australians?

Colonel Holdich then read his paper on "The Application of Indian Geographical Survey Methods in Africa." Colonel Holdich said: These surveys may be assumed to be of a geographical rather than a revenue class, and to have in view objects similar to those obtained by the geographical surveys carried out by Indian survey officers. An outline of the methods proposed may be summarized as (1) the adoption of a rapid system of triangulation along the most important lines for first survey; (2) the extension of a graphic system of mapping from these lines by means chiefly of native labor. The most important lines for first survey are the international boundary lines. There is a great necessity for a topographical acquaintance with the boundaries adopted. Only a small portion of them apparently follow permanent natural features, the rest being defined by rivers, etc., which are dangerous and uncertain. It would appear, then, advantageous to commence triangulation along the boundary lines. This is a national or international question, and State assistance might very well be expected and Imperial resources drawn upon for carrying it out. He then asked, (1) What are these resources? (2) What is the nature of surveys already existing in Africa? (3) What is the nature of the survey we ought to build up? Replying to 2 and 3 we find that if a continuous and comprehensive scheme is to be adopted, with unity of design for all the scattered districts of the African colonial system, nothing has very much been done as yet which would assist us in carrying out our scheme. This scheme should be largely borrowed from experiences in Asia. A consideration of it shows (in reply to 1) to what extent Imperial survey resources might be utilized during the processes of laying out the preliminary lines of triangulation. Then followed a short consideration of the general topographical processes as carried out by natives of India, of the value of such native labor, and of the possibility of raising survey establishments in Africa similar to those which have done such excellent work in Asia.

Mr. Meakin read a paper on "Morocco as a Field for Geographers." Only a small portion of the country is at all fairly known, and on the whole it may be considered, not only for the geographer, but for all scientists, as virgin soil. Only one traveller has explored the famous Atlas to any extent and given to the world satisfactory maps and other topographical *data*. This is the Baron de Foucauld, who travelled some years ago in the disguise of a Jewish Rabbi. The failure of all others who have attempted this task has been due to their unsuitability, chiefly arising from their ignorance of the people and the language. Rohlfs penetrated as far as de Foucauld, on the whole, but had no means of preserving a scientific record. To explore the Atlas abundant adaptability is needful, an intimate acquaintance with the people indispensable, and, as a rule, native costume is imperative. A satisfactory *raison d'être* must always be placed before those whose territory is visited. The only authority with regard to the flora and geology of any portion of the highlands is derived from an excursion of Messrs. Hooker and Ball for a short distance beyond Marrákesh (Morocco city). Some of the Christian slaves of bygone centuries have left us valuable itineraries, but the sum of all that has been accomplished is, after all, very meagre. Many have posed in England as explorers who have merely enjoyed an extended picnic in easily accessible parts. There is consequently no reliable map of Morocco, the only real attempt having been made by Captain Baudouin for the French War Office, in 1848. This is compiled partly from actual observation and the records of travellers, but for the most part depends on the vague information of natives. The configuration of the Atlas is considerably different from that shown on most maps. Instead of one long chain stretching in a south-westerly direction, it is in reality composed of three more or less parallel lines, which are best defined as the Medium, the Great, and the Lesser Atlas, the first-named being the northernmost and the last bordering on the Sahara. Of these only the centre of the Great Atlas has been to any extent explored. With the exception of its northern extremity towards Fez, the Medium Atlas and that portion of the Great Atlas which lies south of it are quite a *terra incognita*. De Foucauld and Rohlfs have skirted the

Lesser chain, and the whole have been crossed at a number of points, though nothing much is known. It is a spur of the Great Atlas which runs off west to Cape Ghir, and this has been crossed many times. The rivers of the south side of the Atlas are mostly swallowed up in the sands of the Sahara after forming fertile oases, while those of the north water the rich alluvial plains of Morocco proper. The perpetual snows of the Great Atlas furnish an abundant supply in the hottest weather, and this mighty back-bone shields the whole country from those desert winds which make the summer of Algeria unbearable. Even the rude operations of the natives have sufficed to prove the richness of this range in valuable minerals. Wild beasts are few, and dangerous ones almost extinct. These mountains are the home of the Morocco Berbers, who offer a most interesting field for scientific research. In a paper to be read before the Anthropological Section of this gathering the writer has endeavored to give a brief sketch of this little known people. They are, however, not the only inducement to further exploration, for very little is known of the troglodyte dwellings which line the mountain sides, and as little of the many ruins left by some former occupiers, ascribed either to Christians or the Romans. Then, too, there is much to be learnt about the Jews who live among the Berbers, as distinct as Jews could be from those who haunt the plains.

Lord Lamington read a paper on his visit to the Shan States on the Siam border. The paper dealt with his journey from Chieng Mai, in the Laos country, to Mung Phoong, in the Sibsong Pana. Starting with Mr. Archer, our Consul at Chieng Mai, he described the country as far as the Meh Teng, a river that flows into the Meh Ping, as being already very productive, and considered that it only required opening up by improved means of communication, an increase of population, and security of property to develop into one of the richest territories. On leaving the Meh Teng they passed over a watershed into the valley of the Meh Hang, an affluent of the Salween. The frontier of our Shan States with Siam lies somewhere in this region, but it has not been yet defined. Arriving at Mung Tuen, they met the British party that came from Burmah to take part in the Anglo-Siamese Boundary Commission. From this place he described a visit to the great cave which the river Meh Hang enters and tunnels its way under a range of hills. He then narrated the journey of the Commission to Mung Sat, and thence down Meh Khok river by a path through the jungle which presented great difficulties from its not having been used for years. For more than three weeks they had seen no habitation, those villages they did pass all having been destroyed. It is the constant petty wars of aggression between the various States that make it an intricate task to settle who has the rightful claim to any particular district. Leaving the Meh Khok some two days' journey above its junction with the Meh Kong, the Commission crossed over a watershed into the plain of Chieng Sen, which is reckoned as over 100 miles long, and of an average breadth of ten miles. This was a welcome change to the party after spending weeks of hard travelling amongst hills, and who, owing to the dense jungle, were never able to obtain a distinct view. He described the plain as being of great fertility with the capacity for further development. At Hongluk, a Shan village at the northerly end of the plain, he left the Commission and travelled alone on his way to Tonquin. Four days' travelling brought him to the river Meh Kong by the village of Kyang Lap. The channel of the river between the banks he considered to be 600 yards broad, but as it was the dry season, the actual breadth of water was only 120 yards, though very deep. A few more days' travelling took him to Mung Sing, the capital of Kyang Kheng, which, though only five years established, shows every sign of being an important place. It is situated in a large plain, well populated, with a series of fertile valleys stretching almost the whole way to the Meh Kong. He dwelt on the possibilities of the great agricultural wealth that could be developed in the State of Kyang Kheng as an argument for urging the Indian Government not to be afraid of accepting the position of being the suzerain Power. The State was hitherto tributary to Kyang Tung, which came under our protection as one of the States of the old kingdom of Ava. But the Tsawbwa of Kyang Kheng, annoyed at his nephew being made Tsawbwa of Kyang Tung, withdrew his allegiance, and placed his State under the protection of Nan, a northern frontier State of Siam. Lord Lamington went on to say that after he had been there the Commission paid a visit to Mung Sing and found the Tsawbwa quite ready to return to his old and proper allegiance. This was most important, as then any railway made up the valley of the Meh Kong would of necessity pass through British territory. A railway to the plain of Chieng Sen was, on Mr. Holt Hallett's showing, sure to be constructed some day, and then the prolongation of it into the rich district of the Sibsong Pana and Yunnan would rest in the hands of the British.

It is to be regretted that Lord Lamington says nothing of the arguments that worked with the repentant Tsawbwa. They were possibly not unfamiliar to the British Association, but their statement would have a certain value.

Mrs. French Sheldon read a paper entitled "A Visit to Kilima-Njaro and Lake Chala." She had no thought of geographical exploration.

Her plan had been to study native habits and customs free from the influence of civilization and in their primitive condition. She started on her journey without companionship or the assistance of a lieutenant, and not even with a doctor. The expedition of 130 men was personally directed, disciplined, and led by herself. Her English stewardess was taken seriously ill, and the expedition had to carry her for three-fourths of the distance in a most dangerous condition. The majority of her caravan party were untrained and unreliable, and until she gained complete mastery over them there was a disposition to be rebellious. The hazard, however, was taken with eyes open, and the responsibility was incurred in order that a portion of the country should be visited which was solely inhabited by natives who had never seen the face of white men or women. She received before starting many hints from men like Mr. Stanley and other travellers. She had, besides, read most of the books on the subject. Within a week from the time she reached Zanzibar her caravan was organized. She had expected and counted on hardships in giving up her home, but she did not expect to have had, day after day, in the solitude of the desert, to contend with new difficulties which arose, and to overcome which almost needed more than human aid. There was nothing left to her to but to gain absolute control over her men. This could only be done by an application of the rawhide whip. She often lay awake at night trying to decide what would be the best thing to do. Had she consulted her own first impulses she would have shot more than once every man in the caravan. She found, however, that a certain degree of patience had to be cultivated, and when punishment had to be meted out it was necessary to wait patiently for the execution of orders. This delay was one of the most difficult things she had to contend against, because of her impatience to have her orders executed. The hardship entailed by the climate was also very great. The rains had begun to fall, and when marching she and her party were frequently up to the armpits in water or half sunk in marshes. It was interesting to observe that the natives, instead of taking to flight on the approach of her party and deserting the caravan paths, came down to meet her. By some system of communication all the tribes seemed to know of her approach, and it afforded her no little amusement to hear the native men and women describe her in their own language as "woman master." They seemed not to be able to comprehend the position of a woman in charge of a caravan ; but, instead of showing her rudeness, the natives from one coast to the other, on routes which passed through savage and wild districts, showed nothing but deference and homage.

She therefore thought that a great deal depended, not on the fact as to whether women or men went among these people, but on the manner in which they went and how they conducted themselves. If travellers acted in a manly and straightforward manner and kept their word of honour inviolable no difficulty was found. It was the person who promised and never fulfilled who got into difficulty, and then the natives got into the habit of thinking that the white man was the biggest liar in existence, with the result that antagonism was engendered and Europeans were paid back in their own coin. Without egotism she might say that the natives treated her not only with homage but as if she were a potentate. She frequently received as many as ten oxen as a mark of homage, and the chiefs would frequently send messengers and couriers ahead in order to find out whether she intended to pass through their territory either going or returning. But she went straight ahead to Kilima-Njaro. Sometimes the natives reconnoitred her approach, and held aloof. On those occasions she went frankly towards them with extended hands containing some bright attractive offering as a present. She went into Africa with all delicacy and womanliness, but quite prepared to accept things as they were there. On one occasion a band of warriors appeared at her camp in an entire state of nudity. Next day, however, they reappeared clothed as her own followers were, thereby showing that they had divined that their original state was distasteful to her. She had been invited by both the men and women of tribes to attend their marriage feasts, dances, and funeral services, which was a very rare experience for any one outside the tribe to enjoy. On the 26th of April she started with a portion of her caravan to visit Lake Chala, near Kilima-Njaro. Descent to the lake could only be obtained by sliding down the rocks, crawling over prostrate trees, forcing a way through primitive forests, and swinging from tree to tree like monkeys. When she reached the bottom of the cliffs surrounding the lake she thought that it was the most sacred looking place she had ever seen. Owing to the overhanging cliffs and the strange murmur of the water the situation was weird in the extreme. She felt herself to be in a state of tremor and marvelled at the curious aspect of the waves on the face of the lake. She also puzzled very much over the origin of those waves, and whether or not there was a current to cause them, but there was neither inlet nor outlet in the lake to account for them. A kind of raft was constructed and the lake was circumnavigated. She was astonished at having to make constant *détours* into various little bays, and her original estimate of the size of the lake, owing to the time taken in the journey, was eight miles round. But this would now be modified into a distance of six miles, a figure which approached more nearly scientific accuracy. The under-currents in the lake were very difficult to overcome, so much so that they were compelled to keep the boat near the shore. By means of a plummet the bottom of the lake was touched at one point at fifty yards' depth. In her return journey she met with an unfortunate accident. While being carried in a palanquin across a swollen torrent the porters stumbled, and she was thrown from a height of 30 or 40 feet. She was dropped by her cariers a second time, and injury to her spine was the result.

Sir Francis De Winton, speaking with an intimate knowledge of the many difficulties which attended caravan travelling, stated that the sufferings and difficulties undergone by Mrs. Sheldon in order to carry out her object testified to her great courage and devotion. When he heard originally of the intended expedition he had many misgivings as to its probable success, because Mrs. Sheldon chose the worst time of the year for her journey—the beginning of the rainy season. He was glad to hear of the patience displayed by Mrs. Sheldon in her dealings with the porters because it ought to be recognized by intending travellers in tropical Africa that nothing but patience would succeed with the natives. He further thought that Mrs. Sheldon's lecture showed that she was possessed of careful and accurate powers of observation, and he trusted her observations would be of great use to those who might follow in her footsteps.

Surgeon-Major Ince thought that Mrs. Sheldon had set an example to future African explorers as to the true manner in which the natives should be approached.

Mrs. French-Sheldon's methods have simplicity and directness. Even a Zanzibari can understand discipline in the shape of a raw-hide whip applied to his back, but is it quite sure that he appreciated the patience displayed by his *woman master* between floggings? It is something to have the approval of Sir Francis De Winton and Surgeon-Major Ince, but the Zanzibaris must have had a sharp sense of the lady's confessed impatience to be up and at them, with her more than human aid. It is natural, perhaps, but strange that Mrs. Sheldon seems to feel no remorse for having introduced into the native Paradise the contaminating idea of clothes, the livery of a degraded civilization, from which "her own thought drove her like a goad" to primitive habits and customs.

Dr. Henry Schlichter read a paper on "The Geography of South-West Africa." He said that South-West Africa was in many respects only imperfectly known to geographers. Our information about Great Namaqualand, the western Kalahari, the large Kaoko district, and the belt between the the Atlantic Ocean and the highlands of the interior was by no means satisfactory. Since Germany had acquired territories in South-West Africa many scientific and other travellers had traversed the German sphere of influence, and thereby contributed to our knowledge of the country. But geographical science had not yet gained much by these recent German explorations, for, with the exception of a few books and scientific publications, all the information had reached the public and been preserved only in various German papers and periodicals, mixed with many more or less unimportant colonial matters. Moreover, the old explorations of South-West Africa needed a revision. Mr. Theal, who had searched the archives of the Cape Colony, had recently discovered that the Orange River was known before Gordon reached it in 1777, and that in 1761–62 a well-equipped expedition penetrated into the interior of Namaqualand, much farther north than Paterson, Gordon, and other travellers did. In 1791–92 a second exploring party reached a point still further north. But these interesting journeys were soon afterwards forgotten. The British Museum contained the full diary (printed in Amsterdam, 1778) of the first of these expeditions, and as Mr. Theal had given only short reports, without going into geographical details, he had examined this diary and compared it with the literature of the present and the last century. He found that this old expedition was of considerable importance for our knowledge of South-West Africa. The object of the author in this paper, therefore, was to collect and criticise the new and old reports unknown to geographers and to give a correct account of the present state of the geography of South-West Africa.

Mrs. Bishop (Miss Isabella L. Bird) gave an account of her visit to the Bakhtiari country. Her route lay through Ispahan and up the country to Khur Amabad. Some people looked forward to the occupation of South-West Persia on the part of England at an early date, and those people considered that the Bakhtiaris, who were excellent horsemen, might soon be made use of by England in that occupation. In view of such an eventuality, interest was felt in the Bakhtiaris, their numbers, and their proximity to South-West Persia. She made references to a map, which described an area of 15,000 square miles in the 31 deg. to 34 deg. north latitude, and 48 deg. to 51 deg. east longitude. The distance she actually travelled was over 700 miles. She could not agree that the people of the Bakhtiari country were savages. In the first place they had that mark of true civilization, that both sexes were clothed in Manchester cottons. They showed reverence for old age and respect for infancy, which were not found in other savage tribes. In the four months she spent amongst them no one offered any personal rudeness. No man of the Bakhtiaris ever lifted the curtain of her tent. They were a pleasant people, and it was easy to move amongst them. The safety of the traveller in the Bakhtiari country depended upon his observance of Bakhtiarian custom and his not violating it where it was possible to avoid doing so. Her part of the expedition consisted of herself, an interpreter, a cook, and two muleteers. She rode on horseback, and they were obliged to take four mules owing to the necessity for carrying all provisions for 40 days, except meat. The party altogether numbered 18 men, of which two only were Europeans, with 20 mules and a few horses. With that party she travelled through that very wild country without any serious disaster. Travel was comparatively easy in the Bakhtiarian country proper, but on reaching beyond the outside range of the influence of two English officers who had preceded her in those parts the people were suspicious, and the party were fired upon twice by a number of tribesmen, but no one was injured. She started for Ispahan on April 30 last year, and the first stage of the journey was through a desert with 300 villages, each village an oasis, each oasis a paradise. On elevated plains, at an altitude of 6,000 ft., they found remains of Armenian villages and Armenian graveyards, showing that probably in centuries long past Christianity was professed by a far larger number of people in the country than at present. On her journey she experienced the cleverness of Bakhtiarian thieves and the celerity of Bakhtiarian justice. In a village she was robbed of all her money, being left absolutely penniless, but in a few days she was repaid the full amount by the local Cadi, who had levied it upon the village where the robbery took place. The thief was liable to have his right or left hand cut off, and the decision of which it should be was referred to her. She described the journey in search of the source of the Karun River. The sinuosities of the river were so extraordinary that in the country from its source to Shuster, a distance of 75 miles, the river's windings reached to 260 miles. In the same course it descended 900 ft. and received many tributaries, which increased its power and velocity In one place coal was found in abundance; it burned well, but there was much bituminous smoke. Bituminous limestone abounded, and bituminous springs. She heard of deposits of sulphur, with which the natives made their gunpowder, but she did not see them. The climate, though it had extremes, was very healthy. They found traces of well-built stone bridges and well-constructed roads, which must have been trodden by the soldiers of Alexander the Great and Valerian, though the natives attributed them and other similar works to supernatural agency in the mythical past. After an interesting account of the agriculture of the country, she said her chief interest was in the Bakhtiaris themselves, and a medicine chest she took with her, together with minor surgical operations, which she undertook, helped her materially in her observance of the native character and customs. Though as Moslems the Bakhtiaris despise women, women act as their doctors. The diseases of the natives were rheumatism, dyspepsia, headache, epilepsy, affections of the eyes, and a simple skin disease caused by want of personal cleanliness. Blood feuds were marked features. Polygamy is the custom of the country, and no female servants were allowed who were not also wives of the man of the house. A Bakhtiari man, therefore, married as many women as he could support, but the women were unveiled and had perfect freedom. However savage intertribal wars might be, the women were always safe. The author devoted some time to detailing the religious beliefs of the Bakhtiaris, which included the idea of a Supreme Being and an intercessor, Heaven and Hell, with a future probation beyond this life which might terminate happily, and a final judgment day. Sin they define as cowardice, breaches of the Seventh Commandment as offenses against tribal interests. They had some idea of the unity of God, but none of the fatherhood of God, the brotherhood of man.

Lord Aberdare moved a vote of thanks to Mrs. Bishop, and referred to the interest that had been taken in this people by Sir H. Layard.

Professor Max Müller seconded the motion, and remarked that this department had obtained a most valuable paper that properly belonged to anthropology.

Mrs. Bishop forgot in her interesting address, and neither Lord Aberdare nor Mr. Max Müller reminded her of the omission, to say which of his hands the Bakhtiari thief was condemned to lose by her decision. She is a great traveller, who has seen the cities and the ways of many men, and she has had the opportunity to observe that even the uncivilized have a respect for justice, when tempered with mercy. By the law of his people the thief deserved to lose his hand; and anthropology, if not geography, waits in suspense to know how the case was decided. Was the left hand cut off, or the right? A Bakhtiari has but two hands, and this must have complicated the question for a civilized woman, naturally reluctant to order the mutilation of a poor fellow to whom the brotherhood of man and the fatherhood of God were unknown ideas.

PILOT CHART FOR SEPTEMBER.--The U. S. Hydrographic Office had received, up to September 1, incomplete data respecting the hurricane of August 18, at Martinique. So far as known, the loss of life was 378, and property to the amount of $10,000,000 was destroyed. The storm passed WNW. toward Santo Domingo. Brief reports indicate that it recurved over the eastern Bahamas, and thence moved NE., close to Bermuda, where, at noon of the 27th, the wind blew with hurricane force from NNW., and the barometer fell to 29.44.

September is one of the most dangerous hurricane months, and the Pilot Chart calls attention to the following information:

"SEASON AND REGION.—Hurricanes are especially liable to be encountered from July to October, inclusive, in the tropics (north of the 10th parallel), the Gulf of Mexico, and Gulf Stream region. Earliest indications: Barometer above the normal, with cool, very clear, pleasant weather; a long, low, ocean swell from the direction of the distant storm; light, feathery cirrus clouds, radiating from a point on the horizon where a whitish arc indicates the bearing of the centre. Unmistakable signs: Falling barometer; halos about the sun and moon; increasing ocean swell; hot, moist weather, with light, variable winds; deep red and violet tints at dawn and sunset; a heavy, mountainous cloud bank on the distant horizon; barometer falling more rapidly, with passing rain squalls.

"CYCLONIC CIRCULATION.—One of the most important indications that an approaching storm is of hurricane violence is the marked cyclonic circulation of the wind, lower and upper clouds, etc. This may be easily appreciated by remembering that a cyclone of any great intensity is an ascending spiral whirl, with a rotary motion (in the Northern Hemisphere) against the hands of a watch, as shown on the diagrams. The surface wind, therefore, blows spirally inward (*not* circularly, except very near the centre); the next upper current (carrying the low scud and rain clouds), in almost an exact circle about the centre; the next higher current (the high cumulus) in an outward spiral—and so on, up to the highest cirrus clouds, which radiate directly outward. The angle of divergence between the successive currents is almost exactly two points of the compass. Ordinarily, with a surface wind from N., for instance, the low clouds come from N., also; on the edge of a hurricane, however, they come from NNE., *invariably.* In rear of a hurricane the wind blows more nearly inward; with a SE. wind, for instance, the centre will bear about W., the low clouds coming from SSE. (two points to the right of the wind). Great activity of movement of the upper clouds, while the storm is still distant, indicates that the hurricane is of great violence. If the cirrus plumes that radiate from the distant storm are faint and opalescent in tint, fading gradually behind a slowly thickening haze or veil, the approaching storm is an old one, of large area; if of snowy whiteness, projected against a clear blue sky, it is a young cyclone of small area but great intensity.

"INTENSIFIED TRADE-WIND BELT.—Another very important fact may be stated thus: When a hurricane is moving along the equatorial limits of a trade-wind region there is a belt of intensified trades to windward of its track; not until the barometer has fallen about six-tenths of an inch is it safe to assume that, because the trade-wind increases in force and remains steady in direction, you are on the track of the storm. By attempting too early to cross its track, running free as soon as the wind begins to freshen, you are liable to plunge directly into the vortex.

"THE BEARING OF THE CENTRE OF A HURRICANE.—The 8-point rule, it should be understood, gives only an approximate idea of the bearing of the centre, and it is probably less reliable in the dangerous than in the navigable semi-circle. The best general rule is that *the centre bears about eight points to the right of the direction from which the low clouds come*, or, what is practically the same thing, *eight points to the right of the wind at the moment of a sudden shift in a heavy squall;* after such a shift the wind will remain steady in direction for a time, but the centre is meanwhile moving along and the angle of bearing changes until the next shift, when it becomes eight points again."

LIGHT-HOUSES OF THE WORLD.—In a Report on the Modern Light-house Service, prepared by Mr. Arnold Burgess Johnson, Chief Clerk of the U. S. Light-House Board, appears the following statement, made up from the British Admiralty Lists, and collated to the year

1890 from statements then from one to five years old :

There were in Europe 3,309 lights, distributed as fol-follows : Great Britain and Ireland 817, France 444, Sweden 295, Italy 244, Norway 220, Spain 187, Germany 179, Turkey 168, Netherlands 166, Russia 154, Denmark (6 in Iceland) 132, Black Sea (Russia and Turkey) 88, Portugal 29, Belgium 18.

Is it to be understood that the countries omitted, such as Austria-Hungary, Greece and Romania, were unprovided with lights in 1890? The figures foot up 3,141, instead of 3309.

There were 1,329 lights in North America :

The United States 802, Dominion of Canada 443, Newfoundland 51, Mexico 15, British Honduras 7, Costa Rica, Honduras and Salvador each 3, Nicaragua and Guatemala, each 1.

South America had 167 :

Brazil 65, Chile 21, Uruguay 16, Argentina 12, Colombia 10, Venezuela 10, Peru 10, Ecuador 9, British Guiana 6, French Guiana 5, Dutch Guiana 3.

The West Indies had 106 :

The Windward Islands 44, Cuba, 21, Leeward Islands 18, Bahama Islands 15, Curaçao, Buen Ayre and Oruba 6, Bermuda 2.

In Asia there were 476 :

China 81, Hindustan 78, Eastern Archipelago 75, Japan 67, Bay of Bengal 30, Straits of Malacca 29, Asiatic Turkey and Syria 28, Philippine Islands 26, Red Sea 15, Gulf of Tartary 14, Ceylon 10, Gulf of Aden 7 Gulf of Suez 7, Siam 2, Corea 1.

There were in Africa 219 lights :

Algeria 48, West and South Coasts 44, Egypt 26, East Coast 25, Canary Islands 13, Cape Verde Islands 12, Tunis 12, Morocco 6, Tripoli 5, Réunion 5, Azores 4, Mauritius 4, Madagascar 4, Zanzibar 4, Comoro Islands 3, Madeira 2, Seychelles 2.

In Oceania the number was 319:

Australia 203, New Zealand 79, Tasmania 12, Hawaiian Islands 8, Fiji Islands 8, Society Islands 3, Samoa and Friendly Islands 3, New Caledonia 2, and Caroline Islands 1.

The total number of lights for the world is 5,925 ; or, allowing for later additions, about 6,000.

TOPOGRAPHICAL ATLAS OF THE UNITED STATES.—Mr. J. H. Hickox announces in his *Catalogue of U. S. Government Publications*, *Vol. VII*, *Nos. 2–5*, that this indispensable periodical, created and sustained by his unaided efforts, will be continued. From this last issue is taken the following list of the Topographical Atlas sheets published during the past year:

UNITED STATES GEOLOGICAL SURVEY.

INTERIOR DEPARTMENT.

Note.—The Geological Survey publishes a map of the United States. (*See* below.) The Survey is also constructing an atlas of the United States from new surveys. Each State is divided by parallels and meridians into sections, and a sheet (about 14 by 17½ inches) covers either a square quarter degree or a sixteenth of a square degree. This division is made without regard to State or county boundaries. Thus it happens that one sheet will sometimes cover portions of two or even three States. A sheet is named from some prominent feature shown upon it. Most of them are on a scale of 1:62,500, or about one mile to one inch ; or on a scale of 1:125,000, or about two miles to one inch. Those on the former scale cover 1-16 of a square degree ; those on the latter, ¼ of a square degree. Relief is shown by contours. The contour interval varies from 5 to 100 feet, according to scale and character of country. The surveys already completed are : New Jersey, 50 sheets ; Massachusetts, 54 sheets ; Rhode Island, 15 sheets ; Connecticut, 34 sheets. The following sheets have been completed during the year ended June 30, 1891 :

ALABAMA.

ASHLAND. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 33° 0′; longitude of eastern border 85° 30′.

CLANTON. Scale 1:125.000; contour interval 50 ft. Latitude of southern border 32° 30′; longitude of eastern border 86° 30′.

ARKANSAS.

MAGAZINE, MT. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 35° 0′; longitude of eastern border 93° 30′.

MARSHALL. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 35° 30′; longitude of eastern border 92° 30′.

MARRILTON. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 35° 0′; longitude of eastern border 92° 30′.

MOUNT IDA. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 34° 30′; longitude of eastern border 93° 30′.

MOUNTAIN VIEW. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 35° 30′; longitude of eastern border 92° 0′.

CALIFORNIA.

COLFAX. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 39° 0′; longitude of eastern border 120° 30′.

PLACERVILLE. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 38° 30′; longitude of eastern border 120° 30′.

COLORADO.

APISHAPA. Scale 1:125,000; contour interval 25 ft. Latitude of southern border 37° 30′; longitude of eastern border 104° 0′.

AROYA. Scale 1:125,000; contour interval 25 ft. Latitude of southern border 38° 30′; longitude of eastern border 103° 0′.

CATLIN. Scale 1:125,000; contour interval 25 ft. Latitude of southern border 38° 0′; longitude of eastern border 103° 30′.

HIGBEE. Scale 1:125,000; contour interval 25 and 50 ft. Latitude of southern border 37° 30′; longitude of eastern border 103° 0′.

LAS ANIMAS. Scale 1:125,000; contour interval 25 ft. Latitude of southern border 38° 0′; longitude of eastern border 103° 0′.

NEPESTA. Scale 1:125,000; contour interval 25 ft. Latitude of southern border 38° 0′; longitude of eastern border 104° 0′.

PUEBLO. Scale 1:125,000; contour interval 25, 50 and 100 ft. Latitude of southern border 38° 0′; longitude of eastern border 104° 30′.

SANBORN. Scale 1:125,000; contour interval 25 ft. Latitude of southern border 38° 30′; longitude of eastern border 103° 30′.

SUFFOLK. Scale 1:125,000; contour interval 25 ft. Latitude of southern border 38° 30′; longitude of eastern border 104° 0′.

TIMPAS. Scale 1:125,000; contour interval 25 and 50 ft. Latitude of southern border 37° 30′; longitude of eastern border 103° 30′.

CONNECTICUT.

BRIDGEPORT. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 0′; longitude of eastern border 73° 0′.

DERBY. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 15′; longitude of eastern border 73° 0′.

MERIDEN. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 30′; longitude of eastern border 72° 45′.

NEW HAVEN. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 15′; longitude of eastern border 72° 45′.

NEW MILFORD. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 30′; longitude of eastern border 73° 15′.

NORWALK. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 0′; longitude of eastern border 73° 15′.

WATERBURY. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 30′; longitude of eastern border 73° 0′.

GEORGIA.

ATLANTA. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 33° 30′; longitude of eastern border 84° 0′.

CARNESVILLE. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 34° 0′; longitude of eastern border 83° 0′.

GAINESVILLE. Scale 1:125,000; contour interval 100 ft.

Latitude of southern border 34° 0′; longitude of eastern border 83° 30′.

IDAHO.

CAMAS PRAIRIE. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 43° 0′; longitude of eastern border 115° 0′.

MOUNTAIN HOME. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 43° 0′; longitude of eastern border 115° 30′.

ILLINOIS.

DESPLAINES. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 41° 65′; longitude of eastern border 87° 45′.

RIVERSIDE. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 41° 30′; longitude of eastern border 87° 45′.

IOWA.

BALDWIN. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 42° 0′; longitude of eastern border 90° 45′.

CEDAR RAPIDS. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 45′; longitude of eastern border 91° 30′.

DAVENPORT. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 30′; longitude of eastern border 90° 30′.

DE WITT. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 45′; longitude of eastern border 90° 30′.

DURANT. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 30′; longitude of eastern border 90° 45′.

MAQUOKETA. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 42° 0′; longitude of eastern border 90° 30′.

MONTICELLO. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 42° 0′; longitude of eastern border 91° 0′.

TIPTON. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 45′; longitude of eastern border 91° 0′.

WHEATLAND. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 45′; longitude of eastern border 90° 45′.

WILTON JUNCTION. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 30′; longitude of eastern border 91° 0′.

KANSAS.

ANTHONY. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 37° 0′; longitude of eastern border 98° 0′.

CALDWELL. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 37° 0′; longitude of eastern border 97° 30′.

CHENEY. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 37° 30′; longitude of eastern border 97° 30′.

GREAT BEND. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 38° 0′; longitude of eastern border 98° 30′.

HUTCHINSON. Scale 1:125,000; contour interval 20 ft.

Latitude of southern border 38° 0′; longitude of eastern border 97° 30′.

KINGMAN. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 37° 30′; longitude of eastern border 98° 0′.

KINSLEY. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 37° 30′; longitude of eastern border 99° 0′.

LARNED. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 38° 0′; longitude of eastern border 99° 0′.

LYONS. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 38° 0′; longitude of eastern border 98° 0′.

NESS CITY. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 38° 0′; longitude of eastern border 99° 30′.

PRATT. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 37° 30′; longitude of eastern border 98° 30′.

SPEARVILLE. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 37° 30′; longitude of eastern border 99° 30′.

KENTUCKY.

HAZARD. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 37° 0′; longitude of eastern border 83° 0′.

MANCHESTER. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 37° 30′; longitude of eastern border 83° 30′.

SALYERSVILLE. Scale 1:125,000; contour interval 100 ft.

Latitude of southern border 37° 30′; longitude of eastern border 83° 0′.

MAINE.

BIDDEFORD. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 43° 15′; longitude of eastern border 70° 15′.

KENNEBEC. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 43° 15′; longitude of eastern border 70° 30′.

NEWFIELD. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 43° 30′; longitude of eastern border 70° 45′.

PORTLAND. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 43° 30′; longitude of eastern border 70° 15′.

MAINE AND NEW HAMPSHIRE.

DOVER. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 43° 0′; longitude of eastern border 70° 45′.

YORK. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 43° 0′; longitude of eastern border 70° 30′.

MONTANA.

LIVINGSTON. Scale 1:250,000; contour interval 200 ft. Latitude of southern border 45° 0′; longitude of eastern border 110° 0′.

NEVADA.

CARSON. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 39° 0′; longitude of eastern border 119° 30′.

NEW HAMPSHIRE AND VERMONT.

BRATTLEBORO. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 42° 45′; longitude of eastern border 72° 30′.

NEW JERSEY.

BRIDGETON. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 15′; longitude of eastern border 75° 0′.

GLASSBORO. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 30′; longitude of eastern border 75° 0′.

EGG HARBOR. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 15′; longitude of eastern border 74° 30′.

HAMMONTON. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 30′; longitude of eastern border 74° 45′.

HIGH BRIDGE. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 30′; longitude of eastern border 74° 45′.

MAURICE COVE. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 0′; longitude of eastern border 75° 0′.

MULLICAS. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 30′; longitude of eastern border 74° 30′.

SALEM. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 30′; longitude of eastern border 75° 15′.

SOMERVILLE. Scale 1:62,500; contour interval 20 ft.

Latitude of southern border 40° 30′; longitude of eastern border 74° 30′.

TUCKAHOE. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 15′; longitude of eastern border 74° 45′.

NEW JERSEY AND DELAWARE.

BAYSIDE. Scale 1:62,500; contour interval 10 ft. Latitude of southern border 39° 15′; longitude of eastern border 75° 15′.

NEW JERSEY AND PENNSYLVANIA.

BURLINGTON. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 0′; longitude of eastern border 74° 45′.

DELAWARE WATER GAP. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 45′; longitude of eastern border 75° 0′.

EASTON. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 30′; longitude of eastern border 75° 0′.

LAMBERTVILLE. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 15′; longitude of eastern border 74° 45′.

PHILADELPHIA. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 39° 45′; longitude of eastern border 75° 0′.

WALLPACK. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 0′; longitude of eastern border 74° 45′.

NEW YORK.

BROOKLYN. Scale 1:62,500; contour interval 20 ft.

Latitude of southern border 40° 0′; longitude of eastern border 73° 45′.

NEW YORK AND CONNECTICUT.

STAMFORD. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 0′; longitude of eastern border 73° 30′.

NEW YORK AND NEW JERSEY.

GREENWOOD LAKE. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 0′; longitude of eastern border 74° 15′.

HARLEM. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 45′; longitude of eastern border 73° 45′.

RAMAPO. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 0′; longitude of eastern border 74° 0′.

STATEN ISLAND. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 30′; longitude of eastern border 74° 0′.

NORTH CAROLINA.

WILKESBORO. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 36° 0′; longitude of eastern border 81° 0′.

PENNSYLVANIA.

CATAWISSA. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 45′; longitude of eastern border 76° 15′.

LEBANON. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 40° 15′; longitude of eastern border 76° 15′.

SCRANTON. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 41° 15′; longitude of eastern border 75° 30′.

TEXAS.

ALBANY. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 32° 30′; longitude of eastern border 99° 0′.

ANSON. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 32° 30′; longitude of eastern border 99° 30′.

CLEBURNE. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 32° 0′; longitude of eastern border 97° 0′.

DALLAS. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 32° 20′; longitude of eastern border 96° 20′.

FORT WORTH. Scale 1:125,000; contour interval 20 ft. Latitude of southern border 32° 30′; longitude of eastern border 97° 0′.

PALO PINTO. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 32° 30′; longitude of eastern border 98° 0′.

WEATHERFORD. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 32° 30′; longitude of eastern border 97° 30′.

VERMONT.

WILMINGTON. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 42° 45′; longitude of eastern border 72° 45′.

VIRGINIA.

FARMVILLE. Scale 1:125,000; contour interval 50 ft.

Latitude of southern border 37° 0′; longitude of eastern border 78° 0′.

PALMYRA. Scale 1:125,000; contour interval 50 ft. Latitude of southern border 37° 30′; longitude of eastern border 78° 0′.

ROANOKE. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 37° 0′; longitude of eastern border 79° 30′.

VIRGINIA AND WEST VIRGINIA.

DUBLIN. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 37° 0′; longitude of eastern border 80° 30′.

WEST VIRGINIA.

HUNTERSVILLE. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 38° 0′; longitude of eastern border 80° 0′.

KANAWHA FALLS. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 38° 0′; longitude of eastern border 81° 0′.

NICHOLAS. Scale 1:125,000; contour interval 100 ft. Latitude of southern border 38° 0′; longitude of eastern border 80° 30′.

WISCONSIN.

MADISON. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 43° 0′; longitude of eastern border 89° 15′.

STOUGHTON. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 42° 45′; longitude of eastern border 89° 0′.

SUN PRAIRIE. Scale 1:62,500; contour interval 20 ft. Latitude of southern border 43° 0′; longitude of eastern border 89° 0′.

UNITED STATES. Map of the United States, compiled under the direction of Henry Gannett, chief topographer, and Harry King, chief draughtsman. Scale 1:2,500,000, approximated, 40 miles to the inch. 1890.

——*Same.* Without contour lines.

PEARY'S GREENLAND EXPEDITION.—According to a despatch to the New York *Herald*, Mr. Peary's vessel, the *Kite*, arrived on the 15th of June at the Strait of Belle Isle, which was found to be packed with ice. The strait was cleared on the 20th, and on the 23d the coast of Greenland was sighted. The *Kite* reached Godhavn June 29th, and left it the same day for Upernivik and Whale Sound.

A later report to the *Herald* of August 24th is pervaded by a tone of discouragement, justified by nothing in the facts. Only the human alacrity in sinking can excuse the suggestion of a relief party next year. The conditions of the enterprise are precisely what they were, with the single exception of the accident which has disabled Mr. Peary for a short time; and accidents are not peculiar to Greenland.

A long article, published in the *Herald* of September 3d, reiterates with exaggeration the forebodings of the telegraphic despatch. Both documents, when read at a future time, may interest, if they do not please, the prophets of evil; and meanwhile Dr. Keeley, when he returns, should have something to say about his reported attempt to purchase an Eskimo child. The despatch follows:

ST. JOHNS, N. F., August 23, 1891.—The Arctic steamer *Kite* arrived here to-day with reports of interesting experiences in Greenland, which include a struggle of three weeks with bergs and floe ice in Melville Bay, during which period she made only 100 miles. Lieutenant Peary, his wife and five associates were lànded in McCormick Bay, Murchison Sound. Whale Sound, his original destination, was frozen over and inaccessible by reason of ice islands and bergs.

While in Melville Bay Peary broke his leg below the knee and he was landed from the *Kite* on a stretcher. The accident occurred on July 11, about latitude 75 degrees, longitude 58 deg. 57 min.

The steamer had been jammed in about the same position for some time. In the evening of that day a strong breeze came up and the ice opened a little and the vessel commenced cutting her way through. The *Kite* came to a heavy bar of ice and the order was given to go astern and then charge the obstruction. Lieutenant Peary was behind the wheelhouse, unknown to the officer on the bridge. The rudder struck a large cake of ice and was knocked over to port. The wheel was sent flying out of the hands of the two helmsmen, the iron tiller hitting Lieutenant Peary on the right leg below the knee, breaking both bones.

It was a clean break, and everything looked favorable for a rapid recovery. He was carried below and a couch rigged up for him in the saloon. His private physician, Dr. Cook, decided that the occurrence need not interfere with the expedition, as he would probably be as well as ever in three months from the time of the accident.

ATTACKED BY A BEAR.

On July 16 the *Kite* was nearly lost. She got nipped between two floes, which began to come together rapidly. All hands were put to work, and by digging and blasting the vessel was saved from destruction. On the same night a polar bear attacked the ship and was killed at a range of fifty-nine yards, several shots out of the volley of thirty bullets having taken effect.

By a series of small stages Cape York was reached July 20. It seemed impossible to go further and it looked as if the expedition must be abandoned, as it appeared impracticable to land even there. On July 23, however, the ice suddenly opened and a course was made clear to McCormick Bay. The spot selected for the camp was on the south side of the bay, latitude 77 deg. 43 min., longitude 70 deg. 18 min., or about on a line with the most northerly point reached by the *Jeannette* expedition.

CAMPED AMID GLACIERS.

A house was built on the slope of a mountain eighteen hundred feet high, with the glaciers pouring down the hills in all directions. On July 30 the *Kite* bade the party farewell and steamed south. Lieutenant Peary wished to impress upon his friends in the United States that the accident to his leg was of small account. This fall the members of his party will explore the Humboldt Glacier—Mrs. Peary, perhaps, going along—and next April or May he and two others will go north to find the northern terminus of Greenland. Lieutenant Peary relies on his whaleboats to get back to Danish Greenland, a distance of six hundred miles, after the work is done next year. It is the unanimous opinion of the *Kite's* captain and officers and the Academy party that he cannot do this with his force, and that to attempt it would be folly. If, therefore, a relief expedition is not sent next year the outfit will be in a bad way.

An interesting study was made by the Academy party of Arctic highlanders of Ittiblu and Cape York. A native tent, two kayaks, or canoes, and weapons were secured for the World's Fair. This is undoubtedly the most complete collection ever made.

A GREAT TROPHY.

The real trophy of the entire expedition was secured on Disco Island in the shape of a three hundred pound meteorite. Three small fragments of meteorites were found there by Nordenskjold, in 1875, and the Swedish government fitted out a ship to bring them back. An American institution offered $10,000 for one, but this was declined. The German Government was to send an expedition next year to look for more. The German scientist Drygalski arrived in Disco just before the *Kite* arrived, but postponed the meteorite hunt until then. Two days after he left Greenland a professor named Heilprin made a trip to Ovifak in a native boat, and took all there were. They will be sent to the Philadelphia Academy. The only museums now possessing specimens are Stockholm and Copenhagen. Under the Danish treaties with Great Britain and the United States the entire expedition is technically a piratical one. The treaties say that any ship landing on Greenland without permission of the Danish government shall be confiscated and all on board punished. If the law were carried out all the scientists would have been sent in chains to Denmark, as Lieutenant Peary had neglected to go through the formalities. On this account he was refused guides, dogs and other assistants, both at Godhavn and Upernavik.

NEARLY LOST IN A STORM.

Besides the dangers of ice the *Kite* was nearly lost off Cape Parry in a terrific gale, the worst ever experienced by Captain Pike. There was also a dangerous combination of leeshore fog and icebergs. Ten days later the ship went ashore in Waigat Channel, between Disco Island and the mainland, but the tide was low and the water smooth, and she floated off.

Among the relics secured were a corpse of an Arctic Highlander, two years dead, and a fine assortment of Eskimo skulls. The entire party are in high spirits, though they had nothing but head winds since leaving New York. Valuable photographs were obtained, a team of young Eskimo dogs and sledges were secured. All explorations south of Godhavn on return journey were prevented by heavy weather and scarcity of coal. So much coal was used up in fighting the ice that Peary will possibly be left with only seven tons for winter. This will be barely sufficient for cooking and heating.

McCormick Bay is a gloomy spot at best, even with the sun high above the horizon twenty-four hours a day, as when the *Kite* was there. With the sun out of sight the high hills on all sides will make the prospect indeed dark and hideous. It seems fitted only for a winter home for bears and white whales, which abound.

Professor Heilprin found the altitude of the ice cap near the camp twenty-four hundred feet, and the party must take sledges and supplies up the glacier to this height before beginning the trip. If the party is detained on the ice cap a few weeks there will be a danger of starving, as no food can be secured after the start. The academy party certainly had their fill of Arctic experiences. Among the food they were forced to eat are bear's blood pudding, bear tongue, patty of bear heart, sandwiches of seal pie, sea gulls and many varieties of birds. Lieutenant Peary saved a bear carcass for winter use.

PREPARING TO RETREAT.

At one time during the Melville Bay experience it seemed certain that the ship would be detained in the ice all winter, as the water froze continually and cold weather seemed to have set in. There was no food on the vessel for any such period, and preparations were almost begun for a retreat over the ice when the floes broke up. The scientists lost greatly by the detention in Melville Bay. Captain Pike had warned Lieutenant Peary not to go into the bay so early, but the Lieutenant was bent on arriving at destination on the Fourth of July. Instead of that the day was celebrated with ice for a horizon all round. Berg climbing, seal hunting and snowballing were the sports. The scientists could have spent the time better in South Greenland, however, botanizing, and they chafed under the delay.

The Danish officials in Greenland consider the presence of Mrs. Peary on the expedition most unwise. It is possible that but for the accident to her husband she would have returned on the *Kite.*

In the latitude of Camp Peary the Arctic night begins at the end of October and lasts 113 days. The members of the party who are in the best condition after that will go North. Lieutenant Peary, if not relieved, will start home at the beginning of August, as he is not provisioned for a second winter.

There are many reindeer near the camp but the prospects for game are not very bright. Caches of blubber were found near the camp, showing the presence of natives in the neighborhood.

The Hydrographic Office chart of the coast north of Cape York was found very defective as to distances and bearings, and it was not possible to verify latitudes and longitudes, as the sun allowed of no observations during the sojourn of the *Kite.* In fact, no sights were possible during the last seven weeks of the trip.

RELIEF EXPEDITION PROBABLE.

The *Kite* left Godhavn homeward bound last Wednesday week. The Academy party will probably sail from here in the Allan line steamer for Baltimore next Wednesday. If these arrangements cannot be completed they will probably charter the *Kite* to take them to New York. The large quantity of material secured makes it advisable to get the *Kite* if terms can be made. There is a very strong probability that the Academy party will get up a relief expedition next year, as the opinion is general among them that some disaster is likely to happen if this is not done. Lieutenant Peary had no conception of the difficulty of crossing Melville Bay in whaleboats. Captain Pike says his boats are not suited for the journey as they are not strong enough to haul over the ice.

Dr. Keeley, the ship's surgeon, tried to buy an Eskimo child at Cape York, but though the natives were destitute and sadly in need of wood and weapons, they could not be prevailed on to sell one of their children. This settlement is said to be dying out. Only forty-eight Eskimos from three villages boarded the ship. Settlements not previously discovered were found on Saunders and Herbert islands, but the natives were away. Lieutenant Peary arranged with Professor Putnam, of the ethnological department of the World's Fair, to send home an Eskimo winter hut, but as it was made of stone and weighed twenty tons it was found impossible to put it on board the ship. A skin house was bought instead from the Ittiblu village.

September 15.

The foregoing was already in type, when a letter, dated July 27, was received from Mr. Peary, with the following report, to which is added a letter, published in the *Sun*, of September 6:

NORTH GREENLAND EXPEDITION OF 1891-92.

R. E. PEARY, U. S. NAVY.

McCORMICK BAY, GREENLAND, JULY 27, 1891.
Lat. 77° 40′ N. Long. 70° 40′ W.

A brief note of the voyage of the *Kite* with the North and West Greenland Expeditions on board may be of interest, but circumstances compel brevity.

The voyage has been exceptional in several respects.

In the first place heavy ice interspersed with small bergs was found filling the Straits of Belle Isle from end to end and extending in a solid pack sixteen miles to the east of Belle Isle. The strong current packed this so closely that the *Kite* was eighty-six hours forcing her way through.

From Belle Isle to Cape Desolation strong northwesterly winds were encountered rising finally to a gale with very rough sea.

Since sighting the Greenland coast, however, there has been no wind stronger than a light breeze from any direction, and with the exception of the time that the *Kite* was ice-bound in Melville Bay the weather has been uniformly clear, calm and warm, and the entire Greenland coast from Cape Desolation to Cape Walker, and from Cape York to Cape Saumarez, has been spread sharp and distinct before our eyes.

Not a cake or piece of ice was seen until the edge of the Melville Bay pack off the Devil's Thumb was reached.

The ice in Melville Bay, though it delayed us three weeks, was very rotten and rapidly melting away, but was yet too heavy for the *Kite* to steam through, and the entire absence of wind kept it stationary and opened no leads for us to take advantage of.

The ice had every appearance of not having been disturbed by any heavy weather during the entire season.

Once out of the pack and into the North Water off Conical Rock, a long swell from the north showed the existence of open water extending undoubtedly to Littleton Island or beyond.

The mouth of Whale Sound as far as the east end of Herbert Island is entirely open, but further up the ice is still undisturbed.

The weather has been delightful ever since we entered the Sound, and indications of the presence of natives in the shape of baited fox traps and caches of blubber have been found whenever a landing has been made.

The east side of McCormick Bay has been selected as the site of my house, the previously proposed site farther up the Sound being inaccessible on account of the ice. R. E. PEARY, U. S. N.

NORTH GREENLAND EXPEDITION OF 1891–92.
McCORMICK BAY, GREENLAND, JULY 26.
Lat. 77° 40′ N. Long. 70° 40′ W.

At last the *Kite* has reached her haven, and after forty-eight days of battling with Arctic seas and ice packs, lies moored within the midnight shadow of the snow-capped cliffs that line the northern shore of Whale Sound. Our latitude is 26′ great than that of the *Jeannette* when crushed. For eight years no ship has wakened the echoes of these cliffs with her whistle; in fact, no ship ever penetrated as far into the Sound as this. Baffin anchored somewhere within the sound on July 4, 1616, and Hayes, while on his homeward voyage in 1861, leaving his schooner outside, came in in a boat and took a round of angles and named prominent points and indentations.

It is with feelings of eagerness and impatience that the eyes of the North Greenland expedition scan the wild shore and the surroundings of what is to be our home for the next year.

The northward voyage of the *Kite* has been exceptional in several respects, some favorable, some the reverse. Leaving New York on the 6th of June, the voyage to Sydney was made in five days. Stopping here one day to coal we got under way again on the 12th (Friday), for the Straits of Belle Isle. On Monday morning in thick fog we ran into heavy pack ice extending entirely across the southwest entrance to the Straits, and did not get through the Straits and into open water east of Belle Isle until 4.30 o'clock Friday afternoon.

The occurrence of heavy Arctic ice in the Straits of Belle Isle, choking it from end to end and extending unbroken a distance of sixteen miles to the eastward of Belle Isle, was unprecedented for this time of the year.

Once clear of the Straits we encountered the kind of weather to be expected at this time in the North Atlantic, *i. e.*, what the sailors call "dirty," until Cape Desolation off the Greenland coast was sighted at midnight of the 23d.

Then there was a complete change, and from here to Godhavn, which was reached early in the forenoon of the 27th, we enjoyed such an uninterrupted view of the wild, majestic scenery of the Greenland coast, such a continuation of calm seas and clear sunshine, and such an utter absence of ice as has probably been experienced by no other Arctic expedition. No pack ice whatever was seen, only the fleets of stately icebergs which always guard these Greenland coasts.

At Godhavn just such a perfect day smiled on us as greeted me five years ago; the great red brown cliffs across the harbor seemed like old friends, icebergs glistened in the brilliant sunlight, and snowbuntings hopped and twittered over the rocks.

The place itself, it is hardly necessary to say, had not changed. No building boom has reached here yet, and the real estate market is as flat as ever. Inspector Andersen's family is a little larger than it was five years ago and Gov. Jansen's ditto, but the inspector and Mrs. Andersen are the same genial, hospitable, homelike couple as ever.

Frederick, my former guide and interpreter, was as ugly as to his face and broken as to his English as ever, and Broberg, the pilot, had not changed a hair; Ikkias and fat Jacob of my old crew were still as ever, but the belles of the town were married, and Hans Hendrick, the Eskimo, who had accompanied so many expeditions, has been dead for three years.

After the formality of a call on Inspector Andersen, accompanied by Prof. Heilprin, Dr. Sharp, and Mrs. Peary, the freedom of the place was given to the expeditions and the members immediately started out for a field day.

All the members of the north Greenland party, accompanied by Profs. Heilprin and half of the west Greenland section, started for the ice cap peering down from the summit of the island through the gorge opposite the settlement. First over the rocks surrounding the harbor, then through the moss-covered, flower-strewn valley, up steep mossy slopes, over the crumbling talus of débris from the cliffs, through a steep defile, then up a slope barren as an ash heap, except for the presence of yellow poppies. It took us four hours of an Arctic afternoon to reach the edge of the ice cap, 2,400 above the sea.

Glowing with our experience, we felt no need of the extra wraps we had brought along, but used them for cushions, and seating ourselves enjoyed the scene around and below us—scenery that can be duplicated nowhere but in Greenland.

Almost at our feet, framed by the walls of the gorge through which we had ascended, lay the town and harbor of Godhavn (the houses mere specks), and the *Kite* and Danish brig in the harbor—toy boats.

Beyond the town the soft blue of Disco Bay rose, dotted with icebergs, far distant misty Egedesminde and the Crown Prince Islands. To our right over the ice cap the blue of Baffin's Bay climbed upward till lost in the golden splendor beneath the western sun. Over the ice cap to our left, Disco Bay, expanding to the Jacobshavn Mountains, bore upon its placid bosom hundreds of icebergs, the output of the mighty Jacobshavn Glacier, whose gleaming front was visible breaking the dark round of the mountains. Behind us was the eternal, unbroken, serene ice cap, smooth as marble, undulating gently.

After the party had feasted upon the scene, all turned to build a cairn in memory of the visit of the Greenland expeditions. When completed to a height of about eight feet on an outcrop of the ledge, the date, the names of the party, and a few American coins were put in a little tin box and deposited in the cairn. Then the party returned to the *Kite*, tired and hungry, but enthusiastic over their Greenland field day.

The next day, though Sunday, was devoted to excursions to points of interest in the neighborhood of Godhavn. In the evening, accompanied by Professor Heilprin, Mr. Astrup, Mr. Kenealy and Mrs. Peary. I dined with Inspector Andersen and Governor Carstens and their families at the Inspector's. After the dinner we looked on for a little time at a native dance in one of the Government buildings, and then returned to the Inspector's house to pass a pleasant evening, with coffee, hot toddy, and the examination of Inspector Andersen's valuable collection of minerals and eggs.

As we made our adieus and took the narrow but well-beaten path down to the little landing where the boat lay waiting to carry us out to the *Kite*, the great brown cliffs rose high into the yellow radiance of the northern sky, casting the little settlement in shadow, but beyond the harbor the icebergs glowed in the yellow sunlight.

On Monday morning I had intended to get under way early, but a southwester, accompanied by a very dense fog, held us in the harbor until 2 P. M., when we steamed out with flags dipping and a salute from the ship's cannon and all the small arms on board.

Once out of the harbor and through a large fleet of bergs cruising off the entrance we shaped our course north and went along the shore of Disco Island, and thirty-six hours later cast anchor in the harbor of Upernavik. During all these hours we steamed through a sea on which hardly a ripple could be seen, dotted here and there with bergs, but absolutely clear of ice, past a continually sunlit coast the Waigat, Noursoak Peninsula, broad-mouthed Omenak Fiord, with the great inland ice visible far up at its head. Black Hook of the Old Dutch navigators, and sublime Sanderson's Hope all stood out in their grandest, most brilliant aspect.

Governor Beyer, of Upernavik, was found to be a very different man from genial Inspector Andersen, and finding it impossible to obtain either a kayak or a native interpreter to go along with us, I returned his official call, accompanied by Professor Heilprin and Mrs. Peary, and then got under way as soon as the fog lifted.

Still our charming weather kept with us, and all night long, after leaving the most northerly town on the globe, with bow turned northward, the *Kite* steamed over summer seas, past the numerous red-brown islands that guard this Arctic coast. Through every depression in the mountains, and from every fiord head, the marble surface of the inland ice looked down upon us, the crevasses in its lower portions, visible at times with the naked eye, past many giant milestones by which the whalers measure their advance in their yearly battles with the ice-floes, we steamed without seeing a bit of ice, and at 6 in the morning reached the Duck Islands, a well-known rendezvous and lookout for the whalers while waiting for the ice barriers of Melville Bay to open for them.

At these islands we stopped till afternoon, laying in a supply of eider ducks, which breed here in thousands. Unfortunately we were too late to get eggs, all being too far advanced to be edible.

Leaving the islands our course was shaped direct for Cape York, with the most sanguine expectations of making a speedy passage across Melville Bay, and perhaps reaching Whale Sound on the 4th of July, the day on which old Baffin cast anchor in the Sound 275 years ago. Our expectations, however, were destined to a speedy downfall. Sixteen miles north of the Dutch Islands we encountered the dreaded Melville Bay pack, and, after running along its edge close into the Devil's Thumb and then back again to the westward in search of a good opening the *Kite*, at 7.30 P. M., on July 2, stuck her sturdy little nose into the pack and began her long battle. Three weeks later, on the morning of the 23d, she emerged from the ice off Conical Rock. Annoying and dull as these three weeks would be under any circumstances, two of them have been especially so to me, laid up on my back with a broken leg.

The accident was caused by a large cake of ice coming in contact with the *Kite's* rudder, while she was going astern, the shock tearing the wheel from the hands of the men stationed at it, and driving the iron tiller against my leg with sufficient force to snap the bone above the ankle.

Though a simple fracture that has already begun to knit, and scarcely more serious than the loss of a finger, the accident has been a severe strain upon my patience.

It will naturally affect the amount of work that I can do this season, as it will confine me for some weeks longer, but it will not interfere with the long sledge journey of next spring.

Once free of the ice and into the north water the *Kite* came merrily along past Wolstenholme Island and Sound, and rounded Cape Parry into Whale Sound.

At Barden Bay we stopped at an Eskimo settlement with a population of seven adults and five children, and obtained some silver, ivory, etc. Then we steamed to Herbert Island, but found no natives, and then shaped a course up the Sound for the proposed site of the house near Cape Tyrconnel.

Our progress was soon stopped, however, by the ice extending unbroken from the east end of Herbert Island to Cape Powlet. Coming about, the *Kite* steamed up between Northumberland Island and Herbert Island, and attempted to get to the eastward through Murchison Sound, north of Herbert Island. Again the ice extending from the east end of Herbert Island to the north end of the Sound barred our advance, and finding it impossible to get further up the Sound, the winter ice not yet having come out, the *Kite* was run into McCormick Bay, and after a reconnoissance of both shores my house will be built on the east side, with an outlook to the southwest, and front Northumberland and Hakluyt Islands.

The site of the house is bright with flowers, and there are numerous traces of reindeer, foxes and hares. Seals and walrus are abundant in the water. Traces of natives are more numerous than I had anticipated. Although we have found but one inhabited village, others visited are evidently only temporarily deserted, and wherever a landing has been made baited fox traps and caches of meat and blubber have been found. All indications are that the expedition will not suffer for provisions.

R. E. PEARY.

THE FLEMISH FOUNDERS OF NEW YORK.—Mr. Virlet d'Aoust's letter on the foundation of New York in 1623 by a colony of Walloons and Flemings is printed in the *Compte Rendu* of the Paris Société de Géographie, No. 12, 1891.

It tells the well-known story of Jesse de Forest, who sailed from the Texel in the ship *New Netherland*, in March, 1623, with a company of emigrants, to whom the States-General had given permission to settle in the Dutch possession of New Netherland in America.

This settlement, which occurred in May, 1623, Mr. Virlet d'Aoust chooses to consider as the foundation of the city, *wrongly called* at first New Amsterdam, instead of New Avesnes, and since known by the "glorious name" of New York. He has reconstituted the history of Jesse de Forest from the study of printed documents, with which other scholars have been acquainted for years, and also from information furnished by members of the de Forest family; and he closes his note with the following flight of imagination:

"Rome, Ancient Rome, raised her founders, Remus and Romulus, to the rank of the gods. The modern American Rome will undoubtedly scorn to remain below the level of her predecessor, and the municipal administration of New York will some day think of raising a monument to the memory of the Avesnois Fleming, Jesse de Forest, the city's first founder, who sacrificed to her his great fortune and his life."

To men less deeply stirred in mind than Mr. Virlet d'Aoust New York resembles Rome as Monmouth does Macedon, and there are difficulties in the way of the proposed monument. It would overtax the resources of art to represent Jesse de Forest as the twins, Romulus and Remus. Romulus, in any case, he could not be, for he fell a sacrifice to the great city; and, for the other, no eloquence could move the Board of Aldermen to vote an appropriation for a statue of Uncle Remus.

LABRADOR.—The Bowdoin College expedition, which entered Labrador in the month of July, returned to the coast, on the 1st of September, having accomplished the principal object, the discovery of the Falls of the Grand or Hamilton river. Mr. Randle F. Holme, who journeyed in Labrador from July to October, 1887, but failed to reach the Falls, describes them from report and knowledge of the country as probably the most stupendous falls in the world, though it is rash to use superlatives in such cases. Mr. Holme's reasoning is good. He says (*Proceedings*, Royal Geographical Society, 1888, pp. 197–198):

"The centre of Labrador, as is generally known, is a vast tableland, the limits of which are clearly defined, though of course the country intervening between this limit and the coast always consists, more or less, of a slope. Roughly speaking, it may be said that in the south and north there is a more or less gradual slope from the height of land to the coast, while in the southeast the descent is sudden, and almost immediately after leaving the tableland there is reached a level which is but little above that of the sea. . . . On the height of land there is found a succession of great lakes joined together by broad placid streams. When the streams of water reach the edge of the tableland, they of course commence a wild career down towards the sea. In the case of the Grand River this rapid descent begins with the Grand Falls, and almost the whole of the great drop to the sea-level is effected in the one waterfall. The elevation of the Labrador tableland is given by Prof. Hind as 2,240 feet. . . . But in the Grand River below Lake Waminikapou there is only one fall, viz., that which occurs 25 miles from the river-mouth. This fall is 70 feet. . . . Now the lake first above the Grand Falls is on the height of land. . . . It follows, assuming the elevation of the tableland on the east to be approximate to that on the south, that in the 30 miles beginning with the Grand Falls and ending with Lake Waminikapou, there is a drop of about 2,000 feet."

According to a telegram dated September 11, from Port Hawkesbury, Cape Breton, the discovery was made by two of the Bowdoin College party, Messrs.

Cary and Cole, who reached the Falls on the 13th of August. They were provided with instruments for measuring heights and distances, and it is implied in the following extract that these were put to good use:

" As they neared the falls a truly magnificent sight was spread out before them. The spray, which was visible 20 miles, rose in a cloud, and the solid rock beneath their feet trembled perceptibly.

" From the falls the water flows through a cañon formed of archæan rock, the sides of which rise to a height of 500 feet. Through this cañon water flows with terrific force, making it absolutely impossible for any boat to live.

"The height of the falls has been grossly exaggerated, and, while presenting a grand and beautiful sight, measures only 200 feet in a perpendicular fall, the rapids leading to this fall increasing the total altitude of the falls to 500 feet.

" Above the falls the average width of the river is 500 yards, narrowing until it reaches the falls to a width of only fifty yards, when it plunges with a terrific roar over the edge and falls into the narrow gorge below. Mr. Cole descended to the foot of the falls and succeeded in obtaining some good photographs of them.

" Having completed the observations of the falls, the party went on a few miles above to the Height of Land, where, from a peak christened by them " Mount Hyde-Bowdoin," they had a fine prospect of the surrounding country. The plateau is nearly all wooded, with a thick, though not, large, growth of soft timber."

It is not to be doubted that two officers of the Hudson Bay Company had visited the Falls; one Mr. Maclean, who was stopped by them in 1839, and the other, Mr. Kennedy, who some thirty years ago was in charge of Fort Nascopee on Lake Petchikapou. Mr. Holme says (*Proceedings*, R. G. S., 1888, p. 197) that he got considerable information from Mr. Kennedy's guide to the Falls, an Indian named Louis, now a cripple.

Messrs. Cary and Cole are none the less entitled to the honor of the discovery.

ROBERVAL'S FORT.—A note in Sweetser's *Hand-Book of the Maritime Provinces, Boston and New York, 1890, p. 301,* suggests the possibility of light on a mystery of early Canadian exploration. This note says:

"Mr. Price, M. P., states that a missionary has recently discovered, high upon the Saguenay (or on the Mistassini) an ancient French fort, with intrenchments and stockades. On the inside were two cannons, and several broken tombstones dating from the early part of the 16th century. It is surmised that these remote memorials mark the last resting-place of the Sieur Roberval, Governor-General of Canada, who (it is supposed) sailed up the Saguenay in 1543, and was never heard from afterwards."

Like all the professed discoveries of Roberval's Fort, this also resolves itself into surmise and supposition. Mr. E. E. Taché, Assistant-Commissioner of Crown Lands for the Province of Quebec, says in a recent letter to Mr. F. A. Stout, of this Society:

"At last I am in a position to give you some kind of an answer to your various enquiries relating to the old forts on the Mistassini. As promised, the matter was referred to the Honorable Mr. Price, who directed one of his superintendents to look into it. Herewith enclosed, I transmit you copy of Mr. Stinton's letter bearing on the subject and which, to some extent, corroborates my statements."

The enclosed letter reads:

"CHICOUTIMI, APRIL 13, 1891.

"*Dear Mr. Colston:*

"I think the supposed Fort on the River Mistassini is a myth, as I have seen all who ought to know and have had H. B. Co. records for years back overhauled.

"All places of trade in this section of the Fur Country were and are called forts, so every H. B. C. post is called a fort, even if only a log house, all Price's first establishments, especially at Chicoutimi and Sault au Cochon, in old times were called forts; the same for missionary establishments, and the Jesuits had, before our occupation, such a fort on the mouth of the Mistassini. About a century ago they abandoned it and went to Pointe Bleue; fifty years later they abandoned Pointe Bleue and went to Metabetchouan, and then abandoned that place, and are now replaced by the Pères Oblats.

"Malcolm Dechene, one of McLeod's voyageurs, now 94, says, when he was young the ruins of this Jesuit fort at Mistassini existed. He has seen them and thinks there was a graveyard, but certainly no inscriptions, and as regards cannon, 'none.' He says, however, very large swivel arquebusses have been found there, clumsy, bell-mouthed pieces, fired with a match instead of a lock; and I have myself seen one of these pieces, found near my house at Chicoutimi. It was about two inches bore and about double that at the mouth. . . .

"Believe me, yours very faithfully, A. STINTON."

THE GEOGRAPHICAL SOCIETY OF THE PACIFIC.—This Society, which was organized at San Francisco in March, 1881, has just issued the first number of Vol. II, of its *Transactions and Proceedings.* Its activity is, however, far greater than the statement of this fact implies.

The Secretary gives a list of 127 papers read at the meetings, up to June, 1891; a record that might be left to stand by its own merit, without the questionable addition that, "During the last ten years more papers have been read before the Geographical Society of the Pacific than before any other Geographical Society in the World, excepting the Royal Geographical Society of Great Britain and Ireland."

It ought to be known that the Royal Geographical Society is not of "Great Britain and Ireland," but of "London"; and it is enough to turn over the *Verhandlungen* of the Berlin Gesellschaft für Erdkunde to dispose of the claim made for the San Francisco Society.

The present number of the *Transactions and Proceedings* contains three papers: Humboldt Bay, by Prof. George Davidson; Geographical and Ethnographical Notes on Alaska, by Ivan Petroff; and Corea, the Hermit Kingdom, by John T. Scott.

Prof. Davidson, who knows the Pacific Coast as a pilot knows his harbor, finds that "Cabrillo and Ferrelo failed to see the land as far north as Cape Mendocino; that Drake merely indicated a receding shore north of Mendocino; that Vizcaíno, or his second in command, placed a 'Great Bay' just north of Cape Mendocino, without the peculiar land-locked characteristics of the present Bay; that Bodega, who surveyed Trinidad Bay in 1775, and who there discovered the peculiar type of our tides, and who had much intercourse with the natives, failed to see or learn of its existence; that Vancouver twice passed it by without a sign of recognition; and that it was left to the American, Captain Jonathan Winship, in an American vessel, with an American crew, to discover the Bay in 1806, when temporarily in the service of the Russian American Company."

From this time Humboldt Bay remained practically unknown until 1849, when a party under Dr. Josiah Gregg came to it by land. The next year the channel was discovered by Capt. H. Bulme, then second officer of the U. S. Rev.-Mar. schooner *Laura Virginia.* The Bay then received its name. Five maps illustrate the paper.

Mr. Petroff gives the result of his observations among the Eskimo and Athabaskan families of Alaska, the former inhabiting the shores from the Copper River westward and northward and from Bering Strait easterly on the Arctic coast, and the latter being sparsely distributed throughout the interior, with one opening to the sea in Cook Inlet.

These two families are in contact along the banks of the Nushagak, the Kuskokwim and the Yukon rivers. On the Nushagak the Eskimo have given up the characteristic *Kayak.* Their houses are the most miserable Mr. Petroff has seen in Alaska. They are built underground, are lined with logs and covered with sods laid on a framework of poplar poles.

The Athabaskans, living on the Malchatna River which enters the Nushagak from the east, about 200 miles from tide water, live in log houses during the winter, but lead a roaming life during the summer. Fifty or sixty miles from the mouth of the Malchatna is a portage route between the Nushagak and the Kuskokwim, not more than 30 miles across but through a swampy country, the water-shed which divides the rivers being only a thousand feet above the sea. Beyond the portage was the first Athabaskan settlement, but the sickness of his men forced Mr. Petroff to leave this unvisited and to return to the Nushagak. There he took the steamer along the coast to the Hagemeister Islands. The Eskimo came off in *kayaks* to beg for tobacco. They were almost without fire-arms, their weapons being spears and arrows.

The Kuskokwim was entered from the sea. The Eskimo frequent the lower river to hunt the grampus, which is left there stranded by the retreating tide. Rows of *beluga*, or white whale, skulls, which looked almost human, were arranged from the line of high-water up to the central ridge of the shore. The natives, when asked to explain this arrangement, answered that the hunters deposited the skulls of the animals killed in a continuous row; which seems to mean that the skulls were so arranged because they were put in that way, though it leaves us in the dark as to what becomes of the skulls of the animals that are not killed.

At this point of the river the opposite shore is never in sight, but at the lowest stage of the ebb tide the waters recede so that they cannot be seen from the shore.

The Kuskokwim Eskimo live in underground houses, with their dogs. They drink, when they are thirsty, any kind of water, even the "briny fluid," when they are at sea.

Shevenagamute, the first trading post on the river, showed evidences of civilization, in the display of cotton goods and matches and the use of cooked food. The rate of exchange at this place was one needle for two salmon, two needles for a goose or a brace of ducks, and a fine-toothed comb for a dozen fish, or three or four ducks.

Twenty miles above this place the two banks of the river were visible at the same time, and villages were met with every ten or fifteen miles, each settlement containing one or two hundred persons.

At 100 miles from the sea the birch-bark canoe appeared, the river banks were higher, and the trees furnished building material for houses. At the Moravian Mission of Bethel there is a school, and some of the natives have learned to count in English up to thirty. Fire-arms are to be found in every habitation, and the reindeer have almost disappeared.

The limit of the Eskimo on this river is Kaltkhagmute. Here is an ancient burial place with carved monuments, mostly in human shape, with disk-like heads and grotesque features. Some of these figures are partially clad, and many have four and even six arms branching off ; a few of these holding wooden platters, on which offerings of tobacco and mink-skins are placed.

From this point the Yukon was reached by a four days' portage and two days on a tributary stream. Where this entered the Yukon is the Russian Mission of Ekogmute. The dwellings here are all above ground and are built of logs, and have roofs covered with earth. The mission is sixty years old, but does not seem to have modified the native ways of life.

On the river the people were engaged in catching the king salmon. The women and girls do the work of cleaning and drying the fish.

At Kozerevsky is a Jesuit Mission established two years ago, and three Sisters of St. Anne have made astonishing progress in teaching the children of the natives. There were twenty-four of these children, all speaking and reading English. They performed a play, written for them, and one presented a little paper to Mr. Petroff with these words written on it: "My name is Joseph and I am seven years old."

The boys are taught gardening, wood-carving, building, etc., and the girls make moccasins and shoes and other articles. One of the Sisters is a professional lace-maker from Belgium, and she has introduced the art.

These Ingaliks make pottery, not of a durable kind, but, as Mr. Petroff believes, the only native Alaskan pottery.

The attempt to introduce Siberian reindeer would fail, Mr. Petroff thinks, because the Alaskan Eskimo is a hunter, to whom an animal is only so much meat, and it would take generations to develop the habits of pastoral life. The Eskimo dogs, moreover, would exterminate the reindeer, if left to themselves.*

Mr. Scott makes no pretension to a close acquaintance with Corea. He visited the country in 1889, under contract as a mining engineer, and left it in two or three months.

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* Mr. Petroff was the special agent of the U. S. Census Bureau and his report, soon to be published, shows that the natives in Alaska are dying out. They number 8,000 less than they did ten years ago. There has been a large influx of whites and Chinese, but there is a decrease of 2,000 in the population of the Territory. The total population to-day is computed at 31,000, composed of 900 Aleuts, 5,000 Indians, 18,000 Esquimaux, 2,300 Chinese and 4,800 whites. In 1880 the number was 33.000, and since that time some 4,000 whites and 2,000 Chinese have been added. Mr. Petroff says rum has ruined the natives.

Alaska.—The *Bulletin* of the National Geographic Society, Vol. III., pp. 53–204, is devoted to Mr. Israel C. Russell's report of his exploration of Mount St. Elias, in 1890. Twenty pages are taken up with a survey of previous work in the same region and the narrative begins at p. 75.

The expedition was organized under the joint auspices of the National Geographic Society and the United States Geological Survey, but was greatly assisted by individuals; and the credit for securing the necessary funds belongs to Mr. Willard D. Johnson. The report shows that all the members of the party worked with interest and enthusiasm, and Mr. Russell himself seems to have been strongly impressed by the magnificence of the scenery in the neighborhood of the St. Elias range.

Of the results he says: "The work planned at the start was carried out almost to the letter, with the exception that snowstorms and the lateness of the season did not permit us to reach the summit of Mount St. Elias."

He determines three well-defined formations in the region:

1. The sandstones and shales about Yakutat Bay and westward along the foot of the mountain to Icy Bay. This is named the *Yakutat system.*

2 A system of probably later date, composed of shale, conglomerate, limestone, sandstone, etc., best exposed in the cliffs of Pinnacle pass and along the northern and western borders of the Samovar hills, and named the *Pinnacle system.*

3. The metamorphic rocks of the main St. Elias range. These are called the *St. Elias schist.*

There are two groups of glaciers, the *Alpine*, of the Swiss type, and the *Piedmont glaciers*, by which name Mr. Russell designates the plateaux of ice along the ocean. This type is represented by the Malaspina glacier, which has an area of between 500 and 600 square miles and a surface elevation in the central part of between 1,500 and 1,600 feet.

With regard to the height and position of Mount St. Elias, Mr. Russell says: "It was intended that Mr. Kerr's report, forming Appendix B, should contain a detailed record of the triangulation executed last summer, but a careful revision of his work by a committee of the National Geographic Society led to the conclusion that the results were not of sufficient accuracy to set at rest the questions raised by the discrepancies in earlier measurements of the height of Mount St. Elias." . . .

The *Bulletin* is illustrated by a number of well executed plates.

MR. SETON-KARR'S MAP OF THE CHILCAT COUNTRY.—Dr. Aurel Krause contributes the following note to the *Deutsche Geographische Blätter, Band XIV, Heft* 2.

"The statement, which I made in the last number of this journal concerning the travels of Seton-Karr in Southern Alaska, has called forth an answer in the May number of the *Proceedings* (Royal Geographical Society), in which it is affirmed that Mr. Seton-Karr copied his map, not directly from that of my brother, but from Dawson's map (1888). On Dawson's map, however, not only is it expressly mentioned that the drawing of the Chilkat River and the pass leading from it to the Yukon is taken from my brother's map; his route is also laid down as a dotted line along the Wellesley—(Tlehini)—river, discovered (!) by Mr. Seton-Karr, to the Heywood Pass, discovered (!) by Mr. Seton-Karr, and beyond that northwards to the confluence of the Yukon.

"For the rest, I refer to my first communication, from which I have not a word to take back."

BERLIN, MAY 12, 1891.

Mr. Seton-Karr says, in the *Proceedings*, R. G. S., for February, p. 76:

"From Klokwan I followed the Chilcat River upwards to its junction with a large stream, which I named the Wellesley River. I found afterwards that it had an Indian name—Klaheena."

When he has occasion to mention this river in subsequent pages, he calls it sometimes Wellesley, sometimes Klaheena; and in his letter, published in the BULLETIN of this Society for June, he disavows the intention of claiming the discovery of the river.

Of Heywood Pass (so named on his map) he says in *Proceedings*, R. G. S., February, p. 83:

"The other two . . . . succeeded in reaching, in company with some Indians who were going in that direction, a branch of the Altsehk other than that which leads from the more direct pass, which I may claim to have discovered."

NAVASA ISLAND.—This island, variously called *Navassa*, *Navaza* and *Navaze*, lies in the southern part of the Windward Channel, between Haiti and Jamaica. It is described in Publication No. 63 of the U. S. Hydrographic Office, as follows:

"Navassa island is 2 miles long NE. and SW. and 1 mile wide; it lies W. ¾ N. from Cape Tiburon, 28 miles distant, and has a uniform height of about 300 feet. Its surface is nearly level, with steep, sloping sides, terminating all round in bold perpendicular white cliffs about 20 feet high.

"The island is inaccessible, excepting at the landing platform on NW. side of the island, used for the shipment of guano.

"The island is of volcanic origin, composed of limestone interspersed with veins of sharp honeycombed rocks of iron pyrites. The spaces between the rocks are filled up with guano, which in some places is 14 feet deep.

"With the exception of the NW. extreme, which is a prominent bluff, a narrow ridge, about 15 feet high above the cliffs and a cable broad, extends all around the island. The summit is clothed with stunted palm-trees and cactus, and is inhabited by iguanas and numerous flocks of sea-birds.

"The island is surrounded by a bank of soundings from ⅓ to ¾ of a mile broad. On the N. and E. sides the bottom is rocky, and the depth from 18 to 40 fathoms. On the W. side the bottom is fine sand with small shells, and anchorage will be found sheltered from the usual trade winds in 16 fathoms of water, good holding ground, with the NW. bluff bearing N. or N. by E., and the SE. point ESE. about ½ a mile off shore; but a heavy swell sets round the SE. end of the island, and the current generally to the NW. The wind seldom blows from the westward. From the NW. end of the island a coral ledge with 4½ fathoms of water on it extends a cable off.

"The NW. point is assumed to be in lat. 18° 25′ 10″ N., lon. 75° 2′ W."

This description seems to show that Navasa Island is not the best place in the West Indies for a naval station.

OROZCO Y BERRA.—The latest *Boletin* of the Mexican Geographical and Statistical Society (4ta Epoca, Tomo II, Nums. 1 y 2) has an account of the Memorial Session of the Society, held on the 31st of December 1889, in honor of Manuel Orozco y Berra. At this session the chair was occupied by President Diaz, and all the proceedings testified to the sense of the national loss in the death of a man, no less remarkable for the solidity and simplicity of his character than for his learning and his unwearied industry. A scholar and a man of science, he wrote on many subjects, but his attention was chiefly given to the history and the geography of Mexico. He had filled many positions of responsibility and of dignity as Professor of Mathematics, of Geography and History, of Mexican History, as Minister of Public Works, as Director of the National Archives and Director of the Museum, and as Member of the Supreme Court; but he never sacrificed to Fortune, and he died in poverty and forgotten, though not without leaving behind him, in the words of the *Comision de Publicaciones*, "a most precious treasure, his works to his fatherland and to his family his unstained integrity."

THE LIMA GEOGRAPHICAL SOCIETY.—The *Sociedad*

Geográfica de Lima was founded by decree of February 22, 1888; but its effective organization dates from April 15, 1891, when its "official life" began with the publication of its first *Boletín.*

The Society forms a public office under the Ministry of Foreign Relations, and its existence is assured by an appropriation from the Treasury.

The *Boletín*, which contains 40 pages, is published monthly, and is devoted to the study and description of Peru, under its physical, moral and economical aspects.

The second number, dated May 15, has a monograph, written in 1886 by the naturalist Raimondi, lately deceased, on the phenomenon known as the *Callao Painter*, or *Barber*. (*El Pintor*, and *Aguaje*, in Spanish.)

This phenomenon is observed at Callao during the summer months, from December to April. It consists of emanations of sulphuretted hydrogen gas, accompanied by changes in the color of the sea-water. The English names, and the Spanish *El Pintor*, arose from the effect produced by the gas upon white paint, which becomes blackish, like the tint of oxidized silver.

The *Callao Barber*, first noticed, according to Raimondi, by Lieutenant Woolridge, of the British Navy, in 1847, is quite fully described by Hutchinson in his *Two Years in Peru*, London, 1873, Vol. 1, p. 219. Hutchinson attributed the emanation of the gas to submarine volcanic action; "knowing," he says, "that the whole coast of Peru is supervolcanic, as well as believing that Callao Bay has been the crater of an extinct volcano." He prints the results of an analysis of the Callao sea-water, a bottle of which, containing some mud from the bottom of the bay, was sent to London, and analyzed by Mr. T. Keates, Consulting Chemist to the Metropolitan Board of Works. After the water had been decanted, Mr. Keates found the black mud in a state of active decomposition, giving off large quantities of sulphuretted hydrogen gas, as well as sulphate of ammonia.

He says: "This mud appears to be ordinary river mud, or silt deposited at the mouth of a river, and lying in sea-water. It contains a considerable quantity of vegetable and some animal matter, and under the microscope shows abundance of diatomaceous remains."

Mr. Hutchinson took notes of the appearance of the bay water, in January, on four occasions. The water was, at first, ochre-brown, with a reddish tinge and opaque, and filled with animalcules of a circular form and colored like the water. Twelve hours after, the water was dark green and thick, with many animalcules shaped like an hour-glass. Fourteen to sixteen hours later, when the *Painter* smell was most nauseating, the water was of a muddyish white, and no animalcules were visible under the microscope. The fourth observation showed the water under its ordinary conditions.

Raimondi remarks that the changes of color do not always accompany the manifestation of the *Painter*. April 28, 1885, the water was so foul near the head of the wharf that many fishes, swimming near, perished; but there was no reddish discoloration of the water. This reddish color simply denotes the presence of infusoria brought in from the open sea. When these enter the harbor during the prevalence of the *Painter*, they die and, in a measure, add to the offensiveness of the odor.

The *Painter* is not peculiar to Callao. Raimondi's investigations proved that it shows itself at various points on the coast between Pisco (S. Lat. 13° 42′ 42″) and Paita (S. Lat. 5° 5′ 30″), and at Pacasmayo (S. Lat. 7° 24′ 20″), where the phenomenon is known by the name of *Salgaso*, the fish die in the poisoned water by thousands.

Raimondi rejects the theory of a volcanic origin for the gas. There is no foundation for the belief that the Bay of Callao is an extinct crater. On the contrary the formations are all alluvial in character, and the work for the construction of the quay showed that the bottom of the harbor was a bed of clayey mud about 20 feet in thickness.* Some have thought that the *Painter* was produced by an occasional strong current from the North, setting into the comparatively shallow harbor and stirring up the drainage from the city. The *Painter* occurs, on the contrary, when the current is from the South.

It has been suggested that the phenomenon is due to the quantities of organic matter brought down by the river Rimac in the freshets, which take place in the summer. While these freshets certainly contribute to the *Painter*, they are not of themselves sufficient to explain it; for then there would be a *Painter* at every point where a river emptied into the sea. Neither can it be admitted that the decomposition of matter from the city drains is the all-producing cause; for, if it were, there would be a constant, and not a periodical, manifestation.

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* The Encyclopædia Britannica, Ninth Edition, *art.* CALLAO, says, without quoting its authority: "the borings for the new works discovered the cause of this (the *Painter*) to be in strongly impregnated springs forcing their way up through a stratum of clay and mud." The discovery does not explain, however, why these springs regularly cease working in April and begin again in December.

Without making a final decision, for which the data are still wanting, Raimondi finds that certain conditions must exist simultaneously and co-operate in order to produce the *Painter.* There must be a marine current setting along the coast from South to North, a point or a chain of highlands projecting into the sea, and to the north, at no great distance, the mouth of a river. The Humboldt Current, passing the extremity of the point at Callao, flows right on without turning into the bay, while the water of the Rimac, flowing out, encounters the Current, and the mass of back-water, held on the north side of the point, is exposed, with all that it holds in suspension, to the full power of the tropical sun.*

Where there is no obstruction to shut off the current, as in that part of Callao exposed to the force of the waves and known by the name of *Mar Brava* (Rough Sea), there is no disengagement of gas. Where the river is wanting, as at Chorrillos and at Ancon, both protected against the southern current, the *Painter* is unknown. Paita is the extreme northern point at which the phenomenon has been observed, and it is at Paita that the Humboldt Current turns away from the coast.

THE SWITZERLAND OF THE NORTH.—This appears to be, according to *L'Esplorazione Commerciale,* of Milan, for June, and *La Geografia per Tutti* of Bergamo, for July 31, the recognized appellation of Finland, a region " remarkable for its wild and picturesque mountains." It seems ungracious to pass by Denmark and Prussia, in the search for a Switzerland of the North, but wisdom is justified of her children.

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* The summer temperature at Callao is about 20° (Fahr.) higher than the winter.

The Finns are as picturesque as their country: "The most affectionate and expansive cordiality prevails among the inhabitants, who embrace each other readily and frequently. The distinguishing mark of the Finlander is generally a red nose." * Was Bardolph a Finn?

What is the glory of Alp or of Apennine, compared with that of a land glowing with perpetual triumphs and everlasting bonfire-lights?

THE GIRONDE.—Mr. A. Hautreux, in the *Bulletin* of the Bordeaux Geographical Society, No. 12 for 1891, has an article, illustrated by 8 double size maps, showing the mouth of the Gironde, at as many epochs.

These maps are:

One of 1590, from the *Miroir de la Mer*, inexact as to distances, but full of interest. This map has a sketch of the Cordan tower before its reconstruction.

One of 1677, reduced from a chart in the Ministry of Marine. This is exact from every point of view, and shows the bank *La Mauvaise* 7 kilomètres (4.35 miles) N. W. of Cordouan, with its great light-house.

One of 1680, traced from that in the *Flambeau de la Mer*. This is inexact as to distances, but contains directions for entering the port.

One of 1751, reduced from Bélin's chart. In this also the distances are incorrectly given, but it shows the advance of *La Mauvaise* towards the N. W., and the commencement of obstruction in the pass of *Le Mattelier*.

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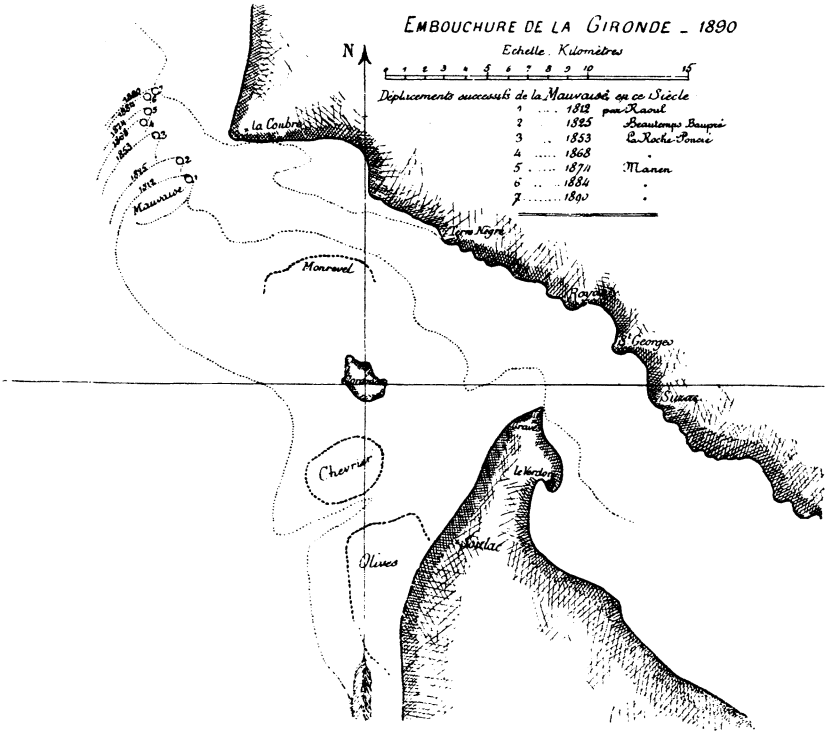
* Fra gli abitanti regna la cordialità più affettuosa ed espansiva: ci si abbraccia facilmente e di frequente. Il Finlandese ha comunemente quale marca particolare il naso rubicondo.—*L'Esplorazione Comm., Giugno, p. 232.*

One of 1798, reduced from the chart by Teulère. Incorrect in measurements, but records the opening of the *Passe du Nord*, the continued displacement of *La Mauvaise* and the increased accumulation of the sands, west of Cordouan.



FROM THE BULLETIN No. 12, 1891 OF THE SOC. DE GEOGRAPHIE COMM. DE BORDEAUX.

One of 1812, reduced from Raoul's chart. This is very correct and, in the original, full of detail. It shows the final closing of the *Le Mattelier* pass and the deepening of the *Passe du Nord.*

La Mauvaise lies directly south of *La Coubre,* and

14 kilomètres (8.7 miles) from Cordouan; so that the bank had advanced 7 kilomètres (4.35 miles) since 1677, or about 50 mètres (164 feet) a year.

One of 1874 reduced from a hydrographic reconnoissance by Manen. It shows the continued movement of *La Mauvaise* toward the N. N. W., and the diminished depth of the *Passe du Nord*, a condition that increased during the succeeding years.

The last map, dated 1890, and here reproduced, brings into view the different positions, occupied by the bank of *La Mauvaise*, at the various epochs of the present century, until it is found closing in upon and uniting with *La Coubre* during the past year.

From 1812 to 1890 *La Mauvaise* advanced in all 5 kilomètres (3.11 miles); about 60 mètres (196.85 feet) a year.

The following table gives the depth in feet of the passes, *Le Mattelier*, *Passe du Nord* and *Passe de Graves*, at the several dates:

Year.	Passe du Mattelier Cordouan bearing.							Passe du Nord.	Passe de Graves.
	E.	ESE.	SE.	SSE.	S.	SSW.	SW.		
1590	65	70	100	90	100	110	110	9	15
1677	75	55	80	90	75	63	70	10	11
1680	50	50	50	50	100	100	50	20	20
1751	24	30	54	60	60	40	55	10	15
1798	40	33	33	90	48	57	63	30	15
1812	40	18	25	60	100	80	75	35	21
1874	45	21	30	60	90	75	60	27	15
1890								24	

This record of three centuries establishes two important facts: the stability of the *Passe de Graves*, which is east of Cordouan, and the continual movement in one direction of the sands to the west of Cordouan.

OBSERVATORY ON MONT BLANC.—Mr. Jansen, who was carried up Mont Blanc in the summer of 1890, has begun the work of constructing an observatory on the top of the mountain. The engineer in charge is M. Imfeld, and he tells of his difficulties in a letter to a Zurich paper. He is staying with eight workmen and two doctors at M. Vallot's cabin which is at an elevation of 4,400 metres (14,436 feet), and they proceed daily to the summit, where they work for several hours. M. Imfeld says that he has encountered traces of a ridge of rock eighteen to twenty metres (60 to 65 feet) below the summit, and covered with about one metre of snow. He has begun to make a series of tunnels on three sides, twelve metres (39 feet) below the summit, to ascertain if the ridge extends to that height. The men suffer from the rarefied air. In spite of coke stoves, the thermometer of the cabin never rises above zero; ink freezes, and water boils at 83° (centigrade scale; zero=32° Fahr., 83°=181°.4 Fahr.). To cook meat is impossible.

The workmen are discouraged, three of them having had hands and feet frostbitten. M. Imfeld increased their pay, but one man refused to remain. One night in August twenty inches of snow fell. August 21, M. Rothe and a guide named Simon slipped into a crevasse and were lost; and all the workmen were so alarmed by this accident that they quit work and M. Imfeld had to descend to Chamounix to engage others. In searching for the bodies of Rothe and Simon tunnels were dug at a depth of 10 metres (33 feet) below the edge of the crevasse, and the men found great difficulty in breathing. On Tuesday (August 25) they discovered a piece of cord 5 metres (16 feet) in length. They sent for help and twelve men started that night for the scene of action. The next day the bodies were recovered.

VOYAGE ON THE DANUBE.—The following letter, addressed to the President of this Society, tells its own story:

CANOE "CARIBBEE," ON THE DANUBE, JULY 21, 1891.

Dear Sir:

As a Fellow of the American Geographical Society I beg to report to your committee that I am at present making, in company with F. D. Millet of New York and Alfred Parsons of London, a voyage in an American-cruising-sailing and paddling-canoe from the source to the mouth of the Danube; sleeping each night in our 3 boats, cooking for ourselves and seeking so far as possible to study the condition of the countries we pass at very close quarters.

We have thus far reached the Hungarian border after passing through territory of Baden, Wurtemberg Prussia, Bavaria and Austria, and have before us Servia, Turkey, Roumania and Russia. If the cruise ends successfully it will, so far as I know, be the first consecutive voyage of the kind ever made on this river. I am, yours respectfully, POULTNEY BIGELOW.

THE IONIAN SEA.—Guido Cora's *Cosmos*, Vol. X, No. 7, presents in a table, illustrated by a colored map, the complete result of the soundings made in the Ionian Sea, in 1886–1887, by the steamer *Washington*, of the Italian Navy, under the command of Captain (now Rear-Admiral) Magnaghi.

The first eight soundings were taken in May, 1886, the rest in August, 1887. The longitude is calculated from the meridian of Greenwich, and the depths are in mètres. The three measurements of 4,055, 4,057 and 4,067 mètres (the last the greatest depth, 13,343 feet, yet found in the Mediterranean) occur within an area, to which Mr. Cora has given the appropriate name of the Abisso Magnaghi.

Lat. N.	Long. E.	Depth	Bottom.
38° 11′ 00″	16° 51′ 15″	1594	mud
38° 25′ 00″	17° 23′ 00″	1738	“
38° 35′ 00″	17° 49′ 05″	1800	“
38° 44′ 00″	18° 15′ 00″	2497	“
38° 53′ 00″	18° 35′ 00″	2451	“
39° 11′ 00″	18° 45′ 00″	1091	“
39° 33′ 18″	18° 55′ 50″	835	“
39° 49′ 50″	19° 16′ 28″	1065	“
36° 22′ 00″	16° 02′ 30″	3315	mud & sand
35° 52′ 25″	18° 18′ 30″	4067	mud
35° 39′ 40″	18° 38′ 00″	4055	“
36° 03′ 10″	18° 36′ 40″	4057	“
36° 30′ 00″	18° 28′ 00″	3976	“
36° 56′ 30″	18° 22′ 30″	3835	“
37° 28′ 40″	18° 18′ 30″	3116	“
37° 56′ 55″	18° 12′ 10″	2620	mud & rock
38° 21′ 30″	18° 08′ 40″	2673	mud
38° 58′ 00″	17° 52′ 00″	2080	“
39° 11′ 50″	17° 44′ 10″	1800	“
39° 32′ 55″	17° 36′ 30″	1669	“
39° 55′ 20″	17° 24′ 30″	1675	“
40° 12′ 30″	17° 17′ 10″	820	“
37° 57′ 25″	17° 04′ 20″	1810	“
37° 57′ 35″	17° 16′ 30″	1565	“
37° 57′ 20″	17° 29′ 30″	1890	“
37° 57′ 00″	17° 40′ 40″	2664	“
37° 57′ 25″	17° 54′ 30″	2710	“
37° 57′ 35″	18° 01′ 15″	2611	“
37° 58′ 15″	18° 09′ 00″	2530	“
37° 59′ 50″	18° 40′ 15″	3227	“
37° 55′ 20″	18° 18′ 50″	3066	“
37° 41′ 30″	18° 01′ 50″	2792	“
37° 26′ 20″	17° 43′ 50″	2733	“
37° 17′ 00″	16° 37′ 15″	2681	“

EGYPTIAN IRRIGATION.—Mr. Scott Moncrieff, Under Secretary of State, Public Works Department, Cairo, writes to *Nature*, of June 18, on the subject of irrigation in Egypt.

He makes two broad subdivisions of his subject: the irrigation effected by the Nile flood when there is rich muddy water in abundance for a land thrice as big as Egypt; and the irrigation effected by the Nile at its lowest in May and June, when the water surface is 20 feet below that of the field, and "when it is only by the strictest economy that we can water an area not exceeding one-fourth of the whole of Egypt."

The first irrigation is the ancient art, practised since the time of the Pharaohs. Its products are wheat, barley, beans, maize and rice.

The second system was introduced by Mohammed Ali, for the cultivation of sugar and cotton. It required deep canals, and the raising of the water in the river for diversion into them by a Barrage, or dam, at the apex of the Delta. This Barrage was constructed at a cost of £2,000,000. Soon after completion it cracked; and, from 1867 to 1883, it was practically useless. The network of canals was cleared every year to about 20 feet below the level of the land, and forced labor was employed upon the work for six months out of the twelve.

The Egyptian Government gave up the hope of using the Barrage. A contract was made for the irrigation of the Behera province by pumps, at an annual cost of between £50,000 and £60,000, and a similar arrangement was considered for the rest of the Delta, at an initial cost of £700,000 and an annual one of £250,000. No attention was paid to the drainage necessary for Lower Egypt, and in Upper Egypt there was a loss of revenue amounting to £38,000 a year, even in years of average Nile flood.

The English took charge of the irrigation in 1884, and to the question, frequently asked, whether there has not been, since then, a great addition to the cultivated area of Egypt, Mr. Scott-Moncrieff replies in the negative. Some extension there has been, notably to the west of Behera and in the Fayûm; and one much more important is in progress along all the north of the Delta, where marshes and lagoons are reclaimed by drainage.

The cultivated area of Egypt is about 5,000,000 acres. The area of the lagoons is 1,280,000 acres, and it is expected that at least half of this land will be reclaimed in a very few years.

What the English have done, are doing, and propose to do in future years, is as follows :

The Barrage has been completed and placed in a condition to fulfil its original purpose. From up-stream of it are derived three main trunk canals, which irrigate the whole Delta, and three smaller canals which irrigate all the country north-east of Cairo and to the south of Zagazig ; one of these takes water to Port Said and Suez. The outlay on the Barrage has been, since 1884, about £460,000. The Tewfikieh Canal, supplying the East Delta, has been made since 1886, at a cost of £372,000.

The Barrage diverts the whole summer supply of the Nile into these canals. So long as there is water in the river, it is under control, and the great cotton crop will be secured.

The Barrage has very largely increased the area of land that produces cotton, and since 1884, when it began to be used, the average annual yield of cotton has been 333,893 Kantars (15,000 tons) greater than in the five years preceding 1884. This makes a value of £835,000 a year, exclusive of the cotton-seeds.

Two main canals, one roughly parallel to each branch of the Nile, have been fitted with locks and rendered navigable ; and through these, when finished, laden boats will be enabled to pass freely between Cairo and

Alexandria on one side, and Cairo and Damietta on the other, at all seasons of the year.

Other locks have been built, and obstructions have been removed.

Year by year drainage arteries have been opened, and in Behera, Gharbieh, Dakahlieh, Sharkieh in Lower Egypt and in the Fayûm, large tracts have been reclaimed and now yield good crops. There are 1500 miles of drains, and the Budget for 1891 contains £140,000 for new drainage works in Lower Egypt.

The annual loss, already mentioned, of £38,000 in average years in Upper Egypt, where the Nile flood did not reach all the fields, has been very greatly exceeded in exceptional years. In 1877, the loss amounted to £1,111,880, and after 1888 it was about £300,000. Col. Ross, Inspector-General of Irrigation, has proved that by a judicious system of canals, sluices, siphons, escapes, weirs, etc., it may be arranged that, even in the worst years, the whole Nile valley shall receive its share of mud-charged water. This involves the construction of a great number of works costing from £5,000 to £15,000 each, built often in remote spots, where construction of any kind is difficult. These works have been going on for more than a year, and will probably be finished in 1893, at a total cost of about £600,000.

Until 1889, it would have been impossible to take a cart-load of agricultural produce from any one centre of population to another in the Delta. Riaz Pasha effected a reform, and now a whole network of serviceable roads is being made, with a fund raised by a tax of 4 or 5

Egyptian pounds (as many guineas) per *feddan* (about 1.1 acres) for one year only.

Before 1885, the work on the clearance and repairs of the canals and embankments was performed by the forced labor of the peasantry. This labor amounted in 1884 to 85,000 men's work for 160 days. It was estimated that to redeem this *corvée* and pay for all this labor would cost £400,000. Nubar Pasha, in the face of the greatest financial difficulty and opposition, managed to give an annual grant of £250,000 for the object; and Riaz Pasha, at the end of 1889, found the means of raising the remaining £150,000; and in 1890, for the first time perhaps in all history, there was no *corvée* in Egypt. A Canal Act has been passed but, unfortunately, its provisions are not binding on residents of foreign nationality.

A problem pressing for solution is that of providing means for the storage of the surplus Nile flood. There are two ways in which this may be done. The first is Mr. Cope Whitehouse's plan for diverting a portion of the flood into the great natural depression to the west of the Nile valley, and there forming a storage reservoir. The expense would be about £1,500,000. The alternative project, now being studied, is to pond up water in the valley of the river above Assûan. "There can be hardly further extension of the cotton cultivation," says Mr. Scott-Moncrieff, "if one or the other of these schemes is not executed. There is room enough in the country to employ both."

COLONEL WILLIAMS AND THE TEMPLE OF DELPHI.—Col. George W. Williams, an American who pointed out, in a letter addressed a year ago to the King of the Belgians, a number of alleged abuses in the administration of the Congo Free State, died in July last in London. *Le Mouvement Géographique* (Brussels) of August 9 refers to the event in these words: "The American traveller who, under the name of Colonel Williams, published in these latter days calumnious attacks upon the Congo, attacks which were here treated as they deserved, has just died in London. Mr. Williams had his moment of celebrity after the fashion of Erostratus, the incendiary who fired the Temple of Delphi."

Le Mouvement Géographique publishes none but "real and genuine news" (number of August 9, p. 74, *Post-scriptum*), and its editor will be glad to learn that Colonel Williams wrote under his own name and honestly believed what he wrote. He may have been misinformed about the Congo Free State, but he had studied history and geography to some purpose, and he never would have gone to Delphi to look for Herostratus and the Temple of Diana at Ephesus.

PTOLEMY'S EASTERN NILE SOURCE, THE VICTORIA NYANZA.—Dr. Konrad Ganzenmüller, in a learned article in the *Zeitschrift für Wissenschaftliche Geographie, Bd. VIII, Heft 1*, seeks to show that the Ukerewe, or Victoria Nyanza, was known to Ptolemy as one of the two lakes from which the Nile took its rise; that, under the name of the Lake of the Crocodiles, it is described by an unknown Greek writer of the 5th, or the 6th, century; and that it is the Kura Kavar of the Arab writers. For Ptolemy himself Dr. Ganzenmüller entertains the deepest respect. He admits that the great geographer speaks almost wholly in names and numbers ; but it is added, very truly, that those names and numbers are the expression of his thoughts, and that if we would comprehend these we must learn to understand his manner of speech, and must not presume to believe, with a recent writer on the history of ancient geography, that " his latitudes and longitudes are clearly worthless."*

Ptolemy calculated the length of a great circle at 180,000 stadia. The stadium contained 600 Attic, = 610 English feet ; and 40 stadia would about equal a geographical mile.† He makes the circumference of the globe smaller than it is; but his longitudes can be brought into substantial agreement with the fact, if reduced by one-sixth ; though the differences are found to increase in advancing from the west to the east. The longitude of Carthage is, according to Ptolemy, 34° 50′, deducting the sixth, 29° 2′ E. of Ferro ; while its true position is 27° 40′, and the error is, therefore, only 1° 22′. Alexandria, placed under 60° 30′ (50° 25, after deduction of the sixth), lies under 47° 40′ and the error amounts to 2° 45′. Farther east, Susa has the longitude of 84°, corrected to 70° ; its true longitude being 66° 30′, and the error 3° 30′. Following the indications of these examples and applying them to the position assigned by Ptolemy to the eastward lake of the Nile sources under the meridian of 65°, Dr. Ganzenmüller brings this, by deduction of a sixth, to 54° 10′, and then, by allowing 3° for the error from west to east, to 51° 10′ E. from Ferro, which agrees with the true position of the Ukerewe, or Victoria Nyanza, between 49° 25′ and 52° 25′ (31° 45′ and 34° 45′ E. from Greenwich).

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* The quotation is from Bunbury's *History of Ancient Geography among the Greeks and Romans from the Earliest Ages to the Fall of the Roman Empire : Vol. II, p. 614.*

† Dr. Ganzenmüller makes the geographical mile equal to 4 minutes.

This is, so far, satisfactory, but it does not restore the authority of Ptolemy. Not only does he make the circumference of the globe too small; he fixes the position of his prime meridian at least 7° too far to the east, and he gives the longitude of places, not according to observation, but by estimates of travel on land or by sea. He makes the Mediterranean 800 miles longer than it is; and what could he hope to measure, if not the Mediterranean? The elements of error in Ptolemy's figures are complicated, and Mr. Bunbury's language with regard to them is fully sustained by Delambre: "Here is more than enough to convince every unprejudiced reader that the geography of the ancients offers no one position upon which we can count. The latitudes are not always exact within a degree. Their longitudes could not have been determined within two degrees, except by an extraordinary chance. Errors of three and four degrees are not rare in the same country, and there are others much more serious, between one country and another. Chorography may derive some fruit from the study of the ancients; but for absolute positions, there is not a single one in which I should be disposed to have the smallest confidence, unless it were found to be confirmed by modern observations; and, in this case, a determination due to chance will never be anything more than a simple object of curiosity."*

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* En voici plus qu'il ne faut pour convaincre tout lecteur non prévenu, que la Géographie des anciens n'offre aucune position sur laquelle on puisse compter. Les latitudes ne sont pas toujours exactes à un degré près. Les longitudes n'auraient

This first part of Dr. Ganzenmüller's essay is less important than the argument to which he mainly addresses himself, the knowledge, that is, of the existence of the Nile sources by Ptolemy and the anonymous writer of the 5th or 6th century, as well as by the Arabs.

It cannot be said, indeed, that he proves his case, because the evidence is not of such a character as to compel its acceptance by an unwilling mind, but he does make it clear that Ptolemy placed the great lakes of which he had heard in something like their true position. Mr. Ravenstein (*Scottish Geographical Magazine, June, 1891*) makes short work of this approximation by *assuming* (it is his own word) that Ptolemy found the lakes correctly placed by Marinus somewhere in the northern Somal country, and "swept them far into the Interior"; a summary process which Mr. Ravenstein imitates when he affirms that Ptolemy "cannot even have read such standard authors as Strabo and Pliny."

The probabilities are in favor of Dr. Ganzenmüller's conclusion that the Kura Kavar of the Arabs is none other than the Ukerewe Nyanza, and that it is identical with Ptolemy's eastern lake of the Nile sources and with the Crocodile Lake of the anonymous Greek writer.

THE CAPTURE OF WADELAI.—The following intelligence was published in some New York papers of August 24 and 25:

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pu être fixées à 2° près, sans un hasard assez extraordinaire. Les erreurs de 3 à 4° ne sont pas rares dans une même contrée et il y en a de bien plus fortes d'un pays à l'autre. La Chorographie peut retirer quelque fruit de l'étude des anciens ; mais pour les positions absolues, il n'y en a pas une seule à laquelle je voulusse accorder la moindre confiance, à moins de la trouver confirmée par les observations modernes ; et dans ce cas, une détermination, due au hasard, ne sera tout au plus qu' un simple objet de curiosité.—*Histoire de l'Astronomie Ancienne, Tome II, p. 542.*

" BRUSSELS, August 24.—A communication in cipher has been received here from Stanley Falls, which indicates that Emin Pasha has been wonderfully successful in his operations in Africa. According to this despatch, Emin Pasha, at the time the message was sent, was resting at Wadelai, after having inflicted a thorough defeat upon the Dervishes.

" As a result of this battle he captured 6,000 tusks of ivory and a quantity of ammunition, arms and stores of many descriptions, and has re-occupied all the old stations in the Equatorial Province, and seems to have completely cowed the Dervishes."

The original appeared in a full-page supplement to *Le Mouvement Géographique* of August 23, as one of two communications received that day from " San Thomé." The head-lines of these communications read :

1. " The Germans on the Upper Nile—Capture of Wadelai by Emin Pasha—Defeat of the Dervishes at Doufilé—A treasure of 6,000 elephants' tusks—Death of Omar Saleh—The former province of Emin under the German protectorate.

5. " The Exploration of the Katanga—Junction of the Delcommune and LeMarinel expeditions--Imprisonment of the Missionary Arnot—Great battle against 3,000 natives—Defeat and death of Msiri—The caverns of Mkouamba—Discovery of mines of gold and mercury."

On p. 79 of the paper appears, at the bottom of the third column, this statement :

" OUR SUPPLEMENT.

" We add to this number a supplement, giving the text of two reports from Stanley Falls.

" This number is a vacation freak. The two despatches are false. They were fabricated at Brussels by us.

" In composing them we wished to prove that we also, quite as well as the telegraphic agencies, are in a position to publish sensational news concerning events which never happened.

" If any are tempted to contradict our despatches, we shall answer by telling them to wait for three or four months.

· " In fact, our two announcements cannot possibly be contradicted for at least three months. Between this time and that, nobody will think of them any more, and we shall have bought very cheaply the luxury of beating all our rivals in the unexpectedness, the rapidity and the abundance of our advices.

" It will be remarked that the two despatches give good news. We could just as well have fashioned them in the doleful style, but we leave that specialty to those who do not shrink from such methods."*

This confession of sin is printed in small type, with other trifles, in a corner as far as possible from the Supplement to which it relates. The display of the fabrication and the modesty of the correction betray their relative nearness to the mind of their author; and those who have hitherto attached a value to the words of *Le Mouvement Géographique* will surely not repeat their offence.

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* NOTRE SUPPLÉMENT.—Nous joignons à ce numéro un supplément donnant le texte de deux dépêches des Stanley-Falls. Ce numéro est une fantaisie de vacances. Les deux dépêches sont fausses. Elles ont été fabriquées à Bruxelles par nous. En les rédigeant, nous avons voulu démontrer que nous aussi, ni plus ni moins que les agences télégraphiques, nous sommes à même de publier des nouvelles à sensation sur des événements qui ne se sont pas passés. A ceux qui seraient tentés de nous démentir nous répondrons en leur disant que nous les renvoyons à trois ou quatre mois.

En effet, nos deux nouvelles sont indémentables pendant au moins trois mois. D'ici là, plus personne n'y songera et nous nous serons payé à bon marché le luxe de battre tous nos concurrents par l'imprévu, la rapidité et l'abondance de nos informations. On remarquera que les deux nouvelles sont bonnes. Nous aurions tout aussi bien pu travailler dans le genre lugubre, mais nous laissons cette spécialité à ceux qui ne reculent pas devant de tels procédés.

THE CRAMPEL EXPEDITION. — Paul Crampel left Brazzaville, in the French Congo, August 16, 1890, at the head of an expedition, to reach Lake Tchad. He had with him four Europeans, Messrs. Nébout, Biscarrat, Orsi and Lauzière, an Arab interpreter, a Targui* interpreter, and the young Pahuin girl Niarinzhe, as Fan interpreter; and his caravan was composed of 30 armed Senegalese, 95 natives of various tribes, and 128 carriers. He reached Bangui, the farthest French post, situated on the bend of the Ubangi, on the 25th September. The commander of this post, M. Musy, had been killed and eaten some months before, and Crampel's first care was to restore the authority of the French in the region. In December he plunged into the unknown country, and the last letter received from him, which bore the date of January 19, 1891, told of his safe arrival on the river Zuvanga.

The next news, through native channels, reported the death of Orsi and Lauzière; and then came the following telegram from M. de Brazza to the Minister of the Colonies: "According to the last tidings from M. Dolisie, at Brazzaville, Crampel, who had gone forward, was assassinated on the 9th of April, together with Mohammed Ben Saïd, the Arab interpreter, and two Senegalese *tirailleurs.* Biscarrat, the commander of the escort, who had remained in camp, was also assassinated.

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* *Targui* is the singular of the word *Touareg*, the equivalent forms in English usage being *Touareg* and *Touaregs*, or *Tuaregs*.

"The rear-guard retreated, under command of M. Nébout, who was in charge of the caravan. It arrived at the post of Bangui, from which place the gunboat *Oubangui* took it on board for Brazzaville, where it was to arrive July 16."

A second telegram dated at Libreville, August 16, and addressed to the *Comité de l'Afrique Française,* confirms the news of the disaster and gives all the information yet received. M. de Brazza says:

"The latest intelligence that has reached Loango from Brazzaville bears date July 27 and confirms all our fears. M. Dolisie writes to me as follows: 'Brazzaville, July 26. A Loango child, a servant of Ben Saïd, the Arab physician of the expedition, appeared before M. Biscarrat on the 23d of May and told him of the murder of M. Crampel and Ben Saïd. Mussulmans had come from from El-Coutil to the camp, to offer their services to M. Biscarrat as porters. They were in reality emissaries, and they were only waiting for the arrival of M. Nébout with the rear-guard to kill the two white men together. They saw that the child recognized them, and this precipitated their purpose. M. Biscarrat was struck down with a knife; the child was also killed, as well as a Kréuman. Thomas (?) is the only man who can tell the whole story.'

"We have as yet no explanation concerning M. Nébout's return. We are left in doubt as to the completeness of the disaster. The gunboat *Djoué* started for

Bangui on the 20th of July, with M. Brunache, commanding the advanced guard of the Dybowski expedition.

" He is accompanied by the post commander Bobichon and is going to establish a station 200 kilometres (125 miles) from Bangui, on the route travelled by Crampel. The connections with the Ubangi will be carefully watched. The gunboat *Alima* also left on the 20th, taking Messrs. Brégeot, Briquez and Fraisse and M. Nébout, who returns to the front.

" M. Dybowski wants to start at the end of August with a gunboat; and he hopes to reach El-Coutil.

" It is only at Bangui that he will be able to receive a telegram from you.

"All the posts on the Ubangi and the Sanga will be reinforced. Three agents, fifty soldiers and a hundred and sixty recruits have arrived. M. Liotard is on the way to the advanced post of Oubanghi. M. Fourneau has returned to Stamboul.

"The exploration of the Sanga is continued and directed towards the supposed point where the catastrophe of the Crampel expedition took place. We may perhaps have some information by this route.

" BRAZZA."

Another French expedition, under M. Fourneau, also on the march to Lake Tchad, has been attacked and repulsed with loss; and two German parties, under Zintgraff and Morgen, have also been driven back. These checks serve only to stimulate both French and Germans, and to deepen their determination to reach and possess a portion, at least, of the lands on the great lake of the Sudan.

It is evident that the difficulties of the enterprise have been underestimated, but it will be carried through in spite of obstacles; and, rivals as they are, the Europeans may find it to their advantage to act in concert.

THE ELDER EXPLORATION OF AUSTRALIA.—The expedition fitted out, under the auspices of the South Australian Branch of the Royal Geographical Society of Australasia, by Sir Thomas Elder, of Adelaide, at a cost of £10,000, made its start on the 22d of April, 1891, for the unknown region of Central Australia, a tract of 500,000 square miles in extent. The enterprise is the sixth of the kind to which Sir Thomas Elder has devoted his time and influence and his ample means; and the suggestion of it came, it may be thought, from a passage in the inaugural address delivered in January, 1890, before the Australasian Science Association, in Melbourne, by the President, Baron Ferdinand von Mueller. He said:

> "Turning to geography, let here the question be asked, as concerning us most, how can Australian exploration be advanced? Talent, enthusiasm, and experience are available at any moment for the purpose. Our first historic century has passed; will the chronologic seculum also close ere the blanks on the map are filled up? If so, it would be almost a reproach; and may I be allowed to repeat, what in a geographic address was said some few months ago: 'The main work of Australian land exploration devolved on nine travellers only; now space seems only left for one more great explorer to rank with the nine. Who will be the tenth to carry off this last of honors, or will it be divided among several less ambitious competitors?' Well may the eagerness be understood, to set the life on winning such a prize."

The plan once conceived, Sir Thomas gave himself with energy to working out the details of its organization with the Council of the South Australian Branch of the Geographical Society.

The Branches of Victoria and New South Wales actively co-operated, and the matured project is described in the following extract from the Adelaide *South Australian Register*, of April 22 :

> " By this morning's early train to the North the members of the expedition fitted out by Sir Thomas Elder, G. C. M. G., under the auspices of the Royal Geographical Society of Australasia, will start on their journey to the Peake. Two of the members—Mr. David Lindsay, the leader, and Dr. Elliott, the medical officer—do not propose to leave Adelaide till Monday next.
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> "The principal members of the party have been appointed on the highest recommendations, including those of Baron von Mueller. Mr. Lindsay, the commander-in-chief, is certainly a well-tried explorer, and there is a general opinion that no expedition has gone forth better equipped for the perilous journeyings of the interior than the one which is about to start. Altogether there are fifteen in the expedition, including three scientific men, four Afghans, and an aboriginal lad. About forty-four camels will be taken on board the train at Farina, and the party will no doubt be well on their way next week.
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> " Of course in such an expedition only an approximate route of the explorers can be stated. Leaving the Peake the expedition will go by way of Mr. A. B. Murray's Cootanoorina Head Station, where they will pick up the black boy who is to accompany them in their travels. Thence the route will be to the Everard Ranges, and striking west they will enter upon the unknown territory which lies between the tracks taken by the exploration parties led by Gosse in 1873, by Forrest in 1874, and by Giles in 1875. The country to be examined here represents a tract some 1,300 miles in length, with an average width of about 300 or 350 miles, and not even the explorers themselves know anything like the route that they will take. Their movements will depend very much upon the situation of the waters. Six or seven months' stores will, however, be supplied for this part of the journey. A stores depot will be established at the head waters of the Murchison, in Western Australia, at either Darlot's or Hope and Moore's stations, the provisions being sent up from Geraldton. Six months' stores will most likely be taken up at the Murchison, and then the explorers will proceed northwards to the Fitzroy, going up between the tracks of Giles in 1876 and Warburton in 1873—a strip of country roughly estimated to be 900 miles in length and 200 in width. In the ex-

ploration of the Kimberley country horses instead of camels will be used on account of the nature of the country to be explored. The next move will be into the Northern Territory to examine the land to the east of that explored by Warburton in 1873, Gregory in 1856, and Forrest in 1879. This is a patch of some 400 miles by 300 miles, lying between the Overland Telegraph Line and the Victoria River and Sturt's Creek, and it is in this region that Baron Von Mueller thinks there is a possibility of relics of Leichardt being found. At any rate Mr. Lindsay and his party intend to have a good search for some remains of this ill-fated explorer. The expedition will probably go south and northwards to Barrows Creek, and west and northwards to Daly Waters, and it is most likely that they will be asked to go on to the tableland to the eastward, and making south map in a few unexplored patches, and describe the country geographically. Stores depots will be established at Barrows Creek and elsewhere in the interior. After examining Northern Territory country and mapping some of the country that still remains a blank on the map, the expedition are expected to make their return journey to Adelaide along the eastern side of the Overland Telegraph line.

The members of the expedition are:

Mr. D. Lindsay, of Adelaide, leader.

Mr. F. W. Leech, of Adelaide, second in command.

Mr. L. A. Wells, of Adelaide, surveyor.

Dr. F. J. Elliot, of Townsville, medical officer and photographer.

Mr. V. Streich, of Adelaide, geologist, mineralogist, etc.

Mr. R. Helms, of Sydney, naturalist, entomologist, etc.

Messrs. R. G. Ramsay, of Adelaide, A. P. Gwynne, of Adelaide, C. A. Bowden and A. Warren, assistants.

The leader (Mr. D. Lindsay, F.R.G.S.), the commander of the expedition, is a son of the late Captain John Lindsay, and was born at Goolwa, South Australia, in June, 1856. Having explored the Mary River he proved that this was the stream which John McDouall Stuart was following in his memorable journey across the continent. Mr. Lindsay remained in the Territory until May, 1882, and during that time rendered invaluable service to the cause of exploration. He advised the route of the Northern Territory railway from Palmerston to Pine Creek, altogether distinct from that surveyed in 1878, and which, although slightly longer, it was said, would reach the agricultural land and the vicinity of the known gold and tin discoveries. Resigning his connection with the Government service in 1882 Mr. Lindsay came to Adelaide and undertook private business, but in 1883 he was commissioned by the Government to explore Arnheim's Land. The expedition, comprising six men all told, including a couple of blacks, took five months to complete the work. Their travels represented the traversing of nearly 2,000 miles of unexplored country, and were associated with most exciting incidents. The expedition led on by Mr. Lindsay with much intrepidity and skill was very successful, and the information given as the outcome of the trip resulted in the country being sold and stocked. Mr. W. Cuthbertson, of New Guinea fame, was second in command. Among important discoveries made by the explorers was that of the Gwendoline Falls, upwards of 195 ft. in height, on the Baker Range, some sixty miles from Southport. During 1884 and 1885 Mr. Lindsay was engaged in surveying on behalf of the Water Conservation Department in the Murray district and on the West Coast. In November, 1885, he started on an expedition, undertaken on his own account, to explore the country between the Dalhousie Springs and the Herbert. It was on this trip that he discovered "the ruby-fields" in the MacDonnell Ranges, and reported upon auriferous deposits there. At the Herbert River Mr. Lindsay, who was accompanied by a party of seven, commenced the survey of 550 miles of run boundaries and connecting with the Overland Telegraph line north of Powell's Creek. Thence he went down the Macarthur River to the new port of Borroloola. On this expedition eight camels were lost. This was his latest journey of exploration."

Leichardt, who left Sydney to cross Australia, in 1848, has not been heard of, and it is hoped that the present expedition may clear up the mystery of his fate. This object is to be kept in view, and the Geographical Society defines it:

"The leader is instructed to return with his party by a southeasterly route through the unmapped country to the eastward of the Transcontinental Telegraph Line in the Northern Territory [of South Australia] and Queensland; and one special object of this will be to follow up any trace of Leichardt if the search to the westward has proved fruitless. The hope of finding some traces of this lost party must not be given up so long as the remotest chance exists of making any discovery; and as there is good reason to believe that the route of the party has been reliably traced to a point in Queensland about lat. 23° 30′ S. long. 144° E., a zealous search may yet reveal some further information. The leader's special attention is called to this obligation as one of the objects of the expedition; and not only the leader, but all the members of the party, must be ever on the alert to seize upon the minutest facts which may be likely to throw some light upon this deeply interesting mystery."

The Royal Society of New South Wales offers its Medal and Money Prize for the best communication (provided it be of sufficient merit) containing the results of original research or observation upon each of the following subjects :

SERIES XI.—*To be sent in not later than 1st May, 1892.*

No. 37.—On the Iron Ore Deposits of New South Wales. The Society's Medal and £25.

38.—On the Effect which Settlement in Australia has produced upon Indigenous Vegetation ; especially the depasturing of sheep and cattle. The Society's Medal and £25.

39.—On the Coals and Coal Measures of Australasia. The Society's Medal and £25.

SERIES XII.—*To be sent in not later than 1st May, 1893.*

No. 40.—Upon the Weapons, Utensils, and Manufactures of the Aborigines of Australia and Tasmania. The Society's Medal and £25.

41.—On the Effect of the Australian Climate upon the Physical Development of the Australian-born Population. The Society's Medal and £25.

42.—On the Injuries occasioned by Insect Pests upon Introduced Trees. The Society's Medal and £25.

The competition is in no way confined to Members of the Society, nor to residents in Australia, but is open to all without any restriction whatever, excepting that a Prize will not be awarded to a Member of the Council for the time being ; neither will an award be made for a mere compilation, however meritorious in its way. The communication to be successful must be either wholly or in part the result of original observation or research on the part of the Contributor.

The Society is fully sensible that the money value of the Prize will not repay an investigator for the expenditure of his time and labor, but it is hoped that the honor will be regarded as a sufficient inducement and reward.

The successful Papers will be published in the Society's Annual Volume. Fifty reprint copies will be furnished to the Author free of expense.

Competitors are requested to write upon foolscap paper—on one side only. A motto must be used instead of the writer's name, and each Paper must be accompanied by a sealed envelope bearing the motto outside, and containing the writer's name and address inside.

All communications to be addressed to the Honorary Secretaries.

F. B. KYNGDON, } Hon. Secs.
W. H. WARREN, }

The Society's House,
5 Elizabeth Street,
Sydney, 26th November, 1890.

TITLES OF SUBJECTS IN GEOGRAPHICAL JOURNALS.

BERLIN—*Verhandlungen der Gesellschaft für Erdkunde.*

The Ninth German Geographical Congress, at Vienna, by G. Kollm—A Voyage to the Bonin and Volcano Islands, by Dr. O. Warburg—*Fead*, or *Faed* Islands?—The Investigation of the Uppermost Strata of the Atmosphere, by Prof. Dr. W. Förster—Prof. Dr. A. Bastian on his latest Journey in Central Asia.

Zeitschrift.

The Most Southern Part of Brazil (Rio Grande do Sul), by Dr. A. Heltner—The transverse Conical Projection, true to the surface, for the Map of Africa, by Dr. A. Bludau—From Peter Martyr's Letters: Notes from the History of the great Discoveries, by Eugen Gelcich.

EDINBURGH.—*The Scottish Geographical Magazine.*

British Civilization and Influence in Asia. By Arminius Vambéry—The Lake Region of Central Africa: A Contribution to the History of African Cartography. By E. G. Ravenstein—Definitions of Geographical Names. By Konrad Ganzenmüller, Ph. D.—Britannic Confederation: II. The Physical and Political Basis of National Unity. By Edward A. Freeman—Mapping and Place-Names of India. By James Burgess, LL.D., C. I. E., etc.—The Orthography of African Names and the Principles of Nomenclature. By W. A. Elmslie, M. B., C. M., Livingstonia Mission—Britannic Confederation: III. The Commerce of the British Empire. (*With Diagrams.*) By Geo. G. Chisholm, M. A., B. Sc.—How Maps are Made. By W. B. Blaikie. (*Illustrated.*)—Rewa River, Fiji. By H. H. Thiele. (*With a Map.*)—Britannic Confederation: IV. Tariffs and International Commerce. By Professor Shield Nicholson—The Geography of South-West Africa. By Dr. Henry Schlichter—Census of the United Kingdom, 1891.

GOTHA.—*Petermanns Mitteilungen.*

The Occupation of the Low Land between the Mouths of the Elbe and the Eider. By Dr. R. Hansen—The Valley of the Rio Grande, in

Mindanao. By Prof. Dr. F. Blumentritt—The Distribution and Expansion of the Races in Brazil according to our present Knowledge. By Dr. P. Ehrenreich—A Depression in the Centre of the Asiatic Continent. By Gen. A. von Tillo—The Sargasso Sea in the North Atlantic. By Prof. Dr. O. Krümmel—The North Polar Limit of the Inhabited and Habitable Earth. By Dr. Kurt Hassert—The Island of Zante. By Prof. Dr. J. Partsch—Results of K. von Ditmars' Explorations in Kamtschatka in the years 1851–55. By Dr. C. Diener—From the Victoria Nyanza by way of Tabora to Bagamoyo. By Dr. Wilhelm Junker—The Dividing Line of the Arctic Winds, and Recent Polar Projects. By Prof. Dr. A. Supan.

LIMA.—*Boletín de la Sociedad Geográfica.*

Introduction—Decrees for Foundation and Organization—District in the Province of Bongará—Meteorological Phenomenon in Ayacucho—Antonio Raimondi and His Work—Lecture on the River Purus—Phenomenon Called *El Pintor* (by Raimondi)—The Winds (Raimondi)—High Tableland of the Beni—The Amazonian Provinces of Peru as a Field for English Enterprise—Report on the District of Acobamba—Archæological Monument at Tarma—Restoration of the Campo de Chupas—Report of the Commission on the Collections left by Raimondi—Geology of Huanta.

LONDON. — *Proceedings of the Royal Geographical Society.*

The Annual Address on the Progress of Geography, 1890–91. By the Right Hon. Sir Mountstuart E. Grant Duff, G.C.S.I., President — The Indian Surveys, 1889–90 — Our Present Knowledge of the Himalayas. By Colonel H. C. B. Tanner (Indian Staff Corps) —Mr. Alfred Sharpe's Journey from Karonga (Nyassa) to Katanga (Msidi's Country) viâ the Northern Shore of Lake Mwero—Geographical Education : The Year's Progress at Oxford and Cambridge—Exploration of the Benue and its Northern Tributary, the Kebbi. By Major Claude M. Macdonald (H.M. Commissioner to the Oil Rivers)—The Volcanic Lake of Tritriva, Central Madagascar. By the Rev. James Sibree, Jun.—Ptolemy's Topography of Eastern Equatorial Africa. By Henry Schlichter—The Selkirk Range, North-West America. By Harold W. Topham.

MADRID.—*Boletín de la Sociedad Geográfica.*

Las Jurdes and Its Legends. By D. Vicente Barrantes—The Climate of Spain. By D. Antonio Blázquez—Report on the Condition of the Geographical Society. By D. R. Beltrán y Róspide—Review of Geographical Progress. By D. Martín Ferreiro.

MEXICO.—*Boletín de la Sociedad de Geografía y Estadística.*

Commemorative Session in honor of the Licentiate and Engineer Don Manuel Orozco y Berra—Origin of the Plural Terminations in the Nahuatl and in some other allied Tongues.

By Sr. V. Reyes—The Goddess of the Water and of the Moon. By Sr. V. Emilio Riedel—Notes on European Meteorological Observatories and Institutes, visited by Rafael Aguilar Santillán.

PARIS.—*Compte Rendu de la Société de Géographie.*

Dutreuil de Rhins in Central Asia—Causes of Chinese Emigration (de Groot)—Letter from M. Ponel on Crampel's Expedition—Travels of M. Quiquerez in Upper Guinea—M. Foa in South Africa—Dr. Ten Kate in the East Indian Archipelago—Notes of Count Meyners d'Estrey on the East Indies, on the Key Islands and on Time-Reckoning in the Philippines—Dr. Rae's Arctic Explorations—Prince R. Bonaparte's Notes on the Swiss Cantons (Unterwalden and Glaris) and on Corsica—M. Sabatier's work on *Touat, Sahara et Soudan*—Cheysson and Toqué on the "*Comparative View of Earnings and Expenses of One Hundred Workingmen's Families.*"—Garnier's Travels in America and in Canada—Gailly's *Manitoba* and the Canadian North-west—Proceedings at the Reception of M. Henri Coudreau and his Account of Travels in Guiana—Foundation of the Prize *Barbié du Bocage* (Gold Medal to be given every three years for the best work written in that time on French Geography, or written in French on a Geographical subject)—Another Foundation of a Gold Medal, the Prize *Louise Bourbonnaud*, to be given every year, to an explorer, French by nationality—Another Foundation, the Prize *Herbet-Fournet*, of a Gold Medal and a sum of 6,000 francs, to be given every two years to the author of the voyage (or travel) judged to be most important and most useful for the progress of geographical science; or, failing this, to the French explorer, whose travels are held to be most useful for the development of the French influence and international relations, or for the extension of the colonial territory; or, failing this, to the best travels performed for commercial studies and aims; or, finally, to the author of the best and most important work on geographical science. [The three Foundations described are due to the generosity of three ladies, the Marquise de Preaulx, Mme. Louise Bourbonnaud, and Mme. Herbet]—Congress of French Geographical Societies—International Geological Congress—M. Rolland on the Transsaharan Railway—M. Forest on Emigration from Morocco to the French Sudan—The Universal Hour—Vasseur and Carez, Geological Map of France—Tomb of Victor Jacquemont—M. Martel on the Subterranean Caverns of Austria and France—M. Venukoff's Russian Notes—Moser's Collections in Central Asia—M. Drapeyron on the *Geographical Course on Classical Instruction*—M. Meyners d'Estrey on Borneo—Schefer and Cordier's Travels of *Frère Odoric de Pordenone*—M. Paul Pelet's Atlas of the French Colonies—Leon Leleux's Photograph of Valsequa's Map (1439)—M. Alex. Boutroue on Portugal.

Bulletin.

Foureau's Expedition to the Tademayt—Jaime on the Niger, its Currents and Freshets—Rabot's Explorations in Russian Lapland—Tourane and the Centre of Annam (Gouin)—Coudreau's Notes on 53 Tribes of Guiana—French Geodesy (Lieut. Col. Bassot)—From the Ogowe to the Campo (Fourneau)—Lieut. Col. Humbert's French Sudan (with a map)—Gouin on the Annamite Costumes—Notes on a Map of America (1669), by Gabriel Marcel.

ROME.—*Bollettino della Società Geografica Italiana.*

Elio Modigliani among the Independent Bataks—Letter of Capt. E. Baudi di Vesme from the Peninsula of the Somali—From Asuncion to La Paz by Prof. L. Balzan—From Maj. Gaetano Casati's Book—The Emancipation of Colonies, by Prof. Dr. G. Coen—Tschungking, the New Chinese Port Opened to Europeans—From Berbera to Ime and the Harar, by E. Baudi di Vesme—From Toba Lake (Sumatra) to Pulo Bandar, by E. Modigliani.

SAN FRANCISCO—*Transactions and Proceedings of the Geographical Society of the Pacific, Vol. II, No. 1.*

Humboldt Bay, by Prof. George Davidson, A. M., Sc. D.—Geographical and Ethnographical Notes on Alaska, by Ivan Petroff—Corea, the Hermit Kingdom, by John T. Scott.

VIENNA.—*Mittheilungen der Kais. Königl. Geographischen Gesellschaft.*

On the Settlement of the Bukowina, by R. F. Kaindl—Remarks to accompany the Map of eastern Mindanao, by Prof. F. Blumentritt.

FINAL NOTE, *September 20.*

The American Geographical Society acknowledges the courtesy of the Minnesota State Historical Society and Mr. J. V. Brower, Commissioner of the Itasca State Park, in furnishing for the present BULLETIN the *Detailed Hydrographic Chart of the Ultimate Source of the Mississippi River.*